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Railway Age

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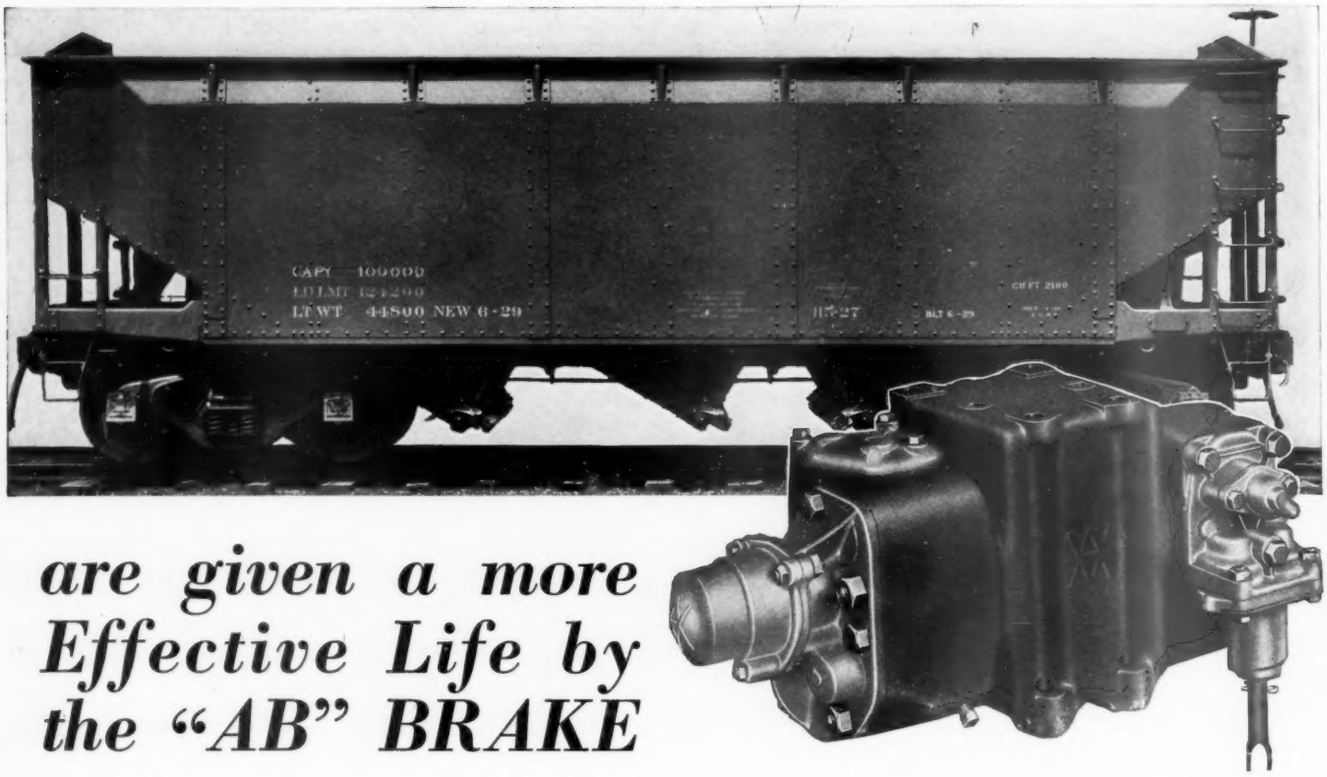

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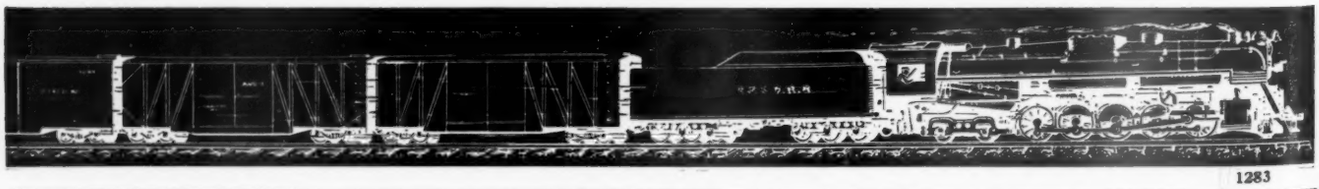

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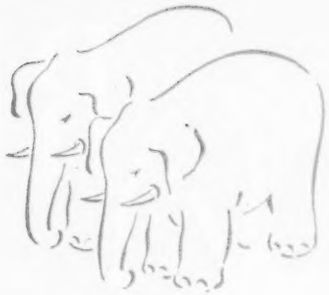

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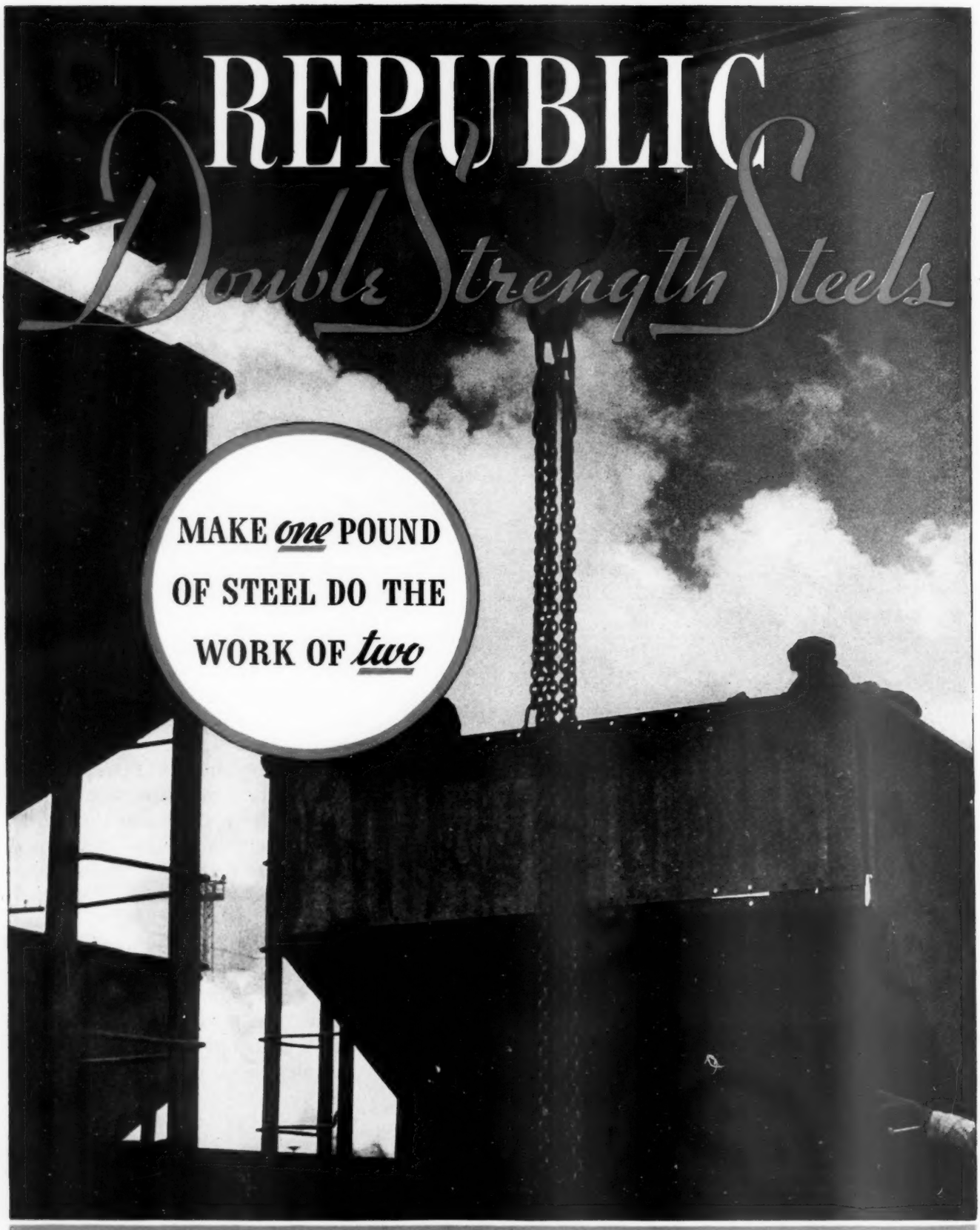

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RAILWAY AGE

What Shall Business Fight For?

In an address to the Union League Club of Chicago on April 3, Ernest Tener Weir, chairman of the National Steel Corporation, said:

> It is small wonder to me that those who have unloosed destructive forces upon American business have been encouraged to advance the extreme measures which have been proposed because, up to the present, a great many business men have been "spineless" in their remonstrances. We are fast arriving at the point, however, where the business leaders of this country will have to fight if they expect to preserve American business from complete enervation. I believe it is the urgent duty of those of us whose viewpoint is opposed to the underlying philosophy of the New Deal to point out fearlessly, candidly, and vigorously the danger to the American people of any radical or hasty departure from what we have come to regard as the American scheme of things. * * *
>
> The officers and directors of a corporation are only trustees for its stockholders. They owe a duty of good faith and fidelity to the people whose money is invested in their projects as well as to their employees and the public. Those who have been entrusted with the management of these trust funds have an obligation to perform and are not discharging it by sitting by while theorists experiment with the national wealth. * * * It would be far better for business to use a part of its funds in educating the people as to the true worth of holding companies than to have to submit to the confiscation that will surely follow if nothing is done to enlighten the public on the subject.

Increased Production and Commerce the Solution

The *Railway Age* endorses these sentiments. The public utility companies recently have set a good example to other industries. In resisting the federal legislation proposed to be applied to them, they have squarely and courageously answered propaganda against them from all sources, however high. They have been so successful in getting their stockholders, large and small, throughout the country to protest to members of Congress against the proposed legislation that it now seems improbable that it will be enacted in its original unfair and harmful form. If the railways had for years defended themselves with equal expenditures, vigor and courage their situation might have been much better now.

When business is urged to fight, however, it is desirable that what it should fight against and for, and how it should fight, should be clearly and comprehensively stated. Obviously and unfortunately, there is no consensus of opinion among business men, or even among business leaders, regarding any of these matters. When about one hundred business leaders met at White Sulphur Springs some months ago there were so many differences among them, principally because so many could think only of the temporary interests of their own industries, that the only program upon which they could agree aroused more attention than enthusiasm, and has been almost forgotten. Their declaration regarding the transportation problem was so plainly an attempt to avoid antagonizing anybody that it was virtually meaningless.

The principal objective of all efforts to solve our economic problems should be increase of the national wealth and income. These problems relate to both production and distribution. The problems of production, although receiving less attention from public men, are now the more vital, but the problems of production and distribution are inter-dependent. That of increasing production is principally the problem of reviving vast potential markets for what can be, but is not now being, produced. The great decline of production during the depression has been due to a loss of markets. It can be revived only by a restoration of effective demand in these markets.

Business and Agriculture

Between July, 1929, and February, 1933, the average wholesale price of farm products declined 62 per cent, while the average wholesale price of all commodities—including farm products—declined only 39 per cent, and average railway revenue per ton-mile declined 10½ per cent. In January, 1935, the average wholesale price of farm products was 87.2 per cent higher than in February, 1933, the average wholesale price of all commodities—including farm products—32 per cent higher, and average railway revenue per ton-mile practically the same as in 1933. Owing to these changes since February, 1933, the average wholesale prices of all commodities had become in January about 13 per cent higher than the pre-war level in 1913, and the average wholesale price of farm products about 7 per cent higher, while average railway revenue per ton-mile was about 36 per cent higher. The pre-war "parity" between the prices of farm products and other commodities had been almost re-established. The principal means by which this had been accomplished has been curtailment of agricultural production by drouth and government regimentation and subsidies.

Many business men criticise the government policies being followed to maintain farm prices and purchasing power. But agriculture and the rural communities directly dependent upon it constitute the largest market for the products of industry. The much greater decline of farm prices than of industrial prices during the first three years of the depression largely destroyed the purchasing power of agriculture and rural communities, and probably was the principal reason why the depression became so profound and protracted. Farm prices declined so much more then than industrial

prices because agricultural production was not reduced, while most kinds of industrial production were. Maximum prosperity requires maximum production by both agriculture and industry. But maximum production by either cannot be secured and maintained without the establishment and maintenance of a reasonable parity between their prices.

Agricultural and Durable Goods Problems

The approximate parity between their present prices cannot be maintained if, without its foreign markets being recovered, agriculture resumes unrestricted production, while industrial prices are maintained on a high level by high wages and other costs of production. Therefore, the agricultural situation, while temporarily improved, still presents to industry and the railroads perhaps their most important problem. If they are going to oppose present government agricultural policies, what are they going to advocate in place of them to provide and maintain, in their own interest, an agricultural market in which they can sell the pre-depression volume of their products and transportation?

Then, there is the durable goods industries' problem, and one of its most important parts, the transportation problem. The durable goods and service industries continue to languish because of conditions in industry in general, and especially in transportation, which prevent the transportation and other industries from increasing their buying from the durable goods industries. The factors in the transportation problem should be obvious. Transportation has been over-expanded by unsound and unfair government policies which can be changed only by state and federal legislation. Fair legislation would increase the earning and buying power of all carriers, and thus contribute substantially toward revival of business and employment in the capital goods industries. The wages of railway employees are much too high under present economic and transportation conditions, and, together with the uneconomic diversion of traffic to other carriers, are responsible for the fact that freight rates must be kept relatively high as compared with commodity prices.

Why Is Transportation Over-Built?

Adoption of government ownership of railways would deal a more terrific blow to capitalism, and advance state socialism more, than all the measures yet adopted or proposed by the New Dealers. Yet, while our privately-owned railways are slowly bleeding to death, many ostensible and vociferous defenders of private property and free private enterprise continue to advocate Old Deal policies tending directly to promote government ownership. "More Competition, Not Less," was the caption of an editorial that appeared in the Chicago Tribune on April 7. We especially refer to it because it expresses views of many business interests that are the very antitheses of their views regarding many New Deal policies, and that are absolutely contrary to the facts and to the policies needed to enable the transportation industry to become a helpful influence toward recovery. The Tribune quoted approvingly a statement made by Chester Gray, legislative representative of the American Farm Bureau Federation, that farmers were "fed up on talk about co-ordination in transportation," and wanted more instead of less competition in the carriage of their products.

"Our transportation system has been overbuilt as a result of bureaucratic efforts to stabilize railway rates," the Tribune added. "The situation cannot be corrected by administering more of the same nostrum to other forms of transport. Increased regulation will inevitably restrict volume." Our transportation system has been over-built, not merely "as a result of bureaucratic efforts to stabilize railway rates," but as a result of government subsidization of other carriers, and of continuance of government regulation of railway service, rates and costs of operation such as has not been applied to competing carriers.

More Competition, or Fair Competition, in Transportation?

Spokesmen of the railways do not advocate government policies to *lessen* competition in transportation. They advocate policies to make it *fair* by equalizing the conditions as respects subsidies, regulation, and employees' wages and working conditions, under which competition must be carried on. The *Railway Age* repeatedly has asked the Chicago Tribune, as the self-constituted spokesman of business interests that oppose regulation of other carriers, to state specifically (1) whether it favors or opposes subsidization of the competitors of the railways by air, water or highway, and (2) whether—as it opposes regulation of other carriers—it also favors abolishing the regulation of railways which (a) prohibits unfair discriminations in service or rates, (b) requires government permission to build new lines or abandon or substantially reduce service, and (c) requires government permission to change rates. We again ask the Tribune to state specifically what government policies it favors as respects these vitally important matters. We invite it also to say whether it favors equalizing the wages and working conditions of employees of railways and other carriers, by reducing the cost of the former, or by increasing the cost of the latter, or by both. Equalize government treatment, and the railways would soon give other carriers much more of every kind of competition than they and their partisans would welcome.

The Demagogy of Conservatism

For the Tribune to misstate the reasons for existing railway conditions, advocate more competition in transportation, and at the same time refuse to say under what conditions as respects subsidization, regulation, wages and working conditions, it believes such competition should be carried on, is braggart cowardice. It is as misleading, unfair and demagogic discussion of a great problem as the contributions to political economy made by Huey Long in his "share the wealth" speeches,

and has a more insidious, and therefore more dangerous, influence for state socialism.

There is a demagogy of pretended conservatism as well as a demagogy of avowed radicalism. It consists in ostensible conservatives advocating socialistic policies for their own supposed benefit such as they clamorously oppose when advocated for the supposed benefit of others. It is best exemplified by those business interests and their spokesmen that advocate government subsidization of competition with the railways while opposing government-subsidized competition with other industries, and that favor continuance of government regulation of railway service and rates while opposing similar regulation of other carriers, and opposing regimentation of other industries. Conservatism will have to abandon its selfish and short-sighted role of Mr. Facing Both Ways, and fight for similar and constructive government policies for all industries, if it is to contribute toward recovery, and successfully defend the existing governmental and economic systems of the United States from the attacks of radicalism.

How Business Leaders Have Injured Business

The *Railway Age* agrees with many criticisms of New Deal policies, but it also believes that business leaders are largely responsible for present economic conditions; that they could have done much to have prevented them; and that business will have to do much to set its own house in order, as well as to change government policies, in order to promote recovery. Business joined with the government in establishing NRA, and thereby in causing advances in wages and prices at a stage of the depression when they were the worst things that could have been done. Many business interests, for their own supposed selfish benefit, originally joined in advocating the program of huge government expenditures upon public works which has indefinitely postponed balancing the federal budget and degenerated from a policy of "priming the pump" of industry into a policy of gigantic and reckless spending for "relief" and "security" to prevent the effects of this and the next depression, in complete disregard of its plain tendency to intensify the causes and protract the effects of the present depression.

What all business needed, and still needs, was an increase in the total volume of production and commerce in private business, but business joined with the government in adopting the best policies that could have been adopted to have arrested the increase in production and commerce which began in the last one-third of 1932, and was immediately resumed in the second quarter of 1933 after its interruption by the banking crisis in the first quarter of that year.

Policies Between Which Business Must Choose

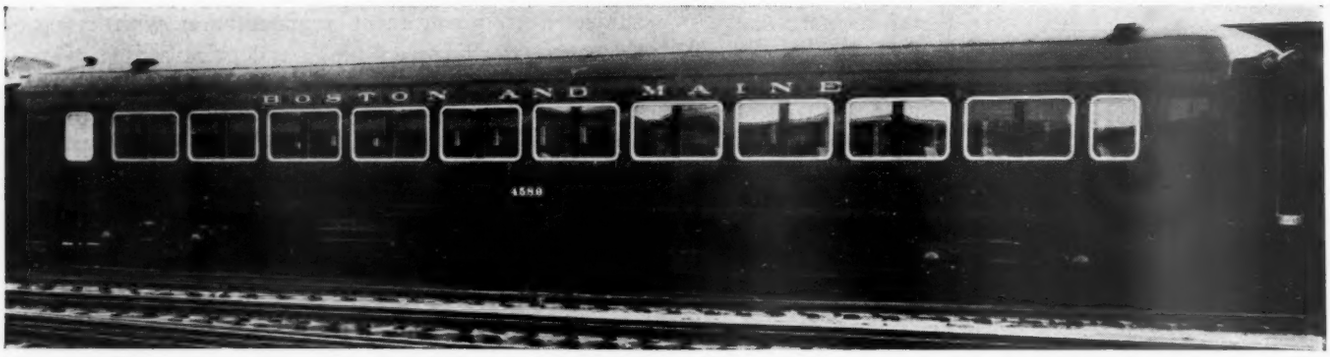
Industrial leaders were very naive who believed that they could stimulate only the government spending that would be temporarily helpful to their own industries, and that they could in large measure abolish competition, whether under NRA or otherwise, without being subjected to government regimentation with respect to wages, working conditions and price fixing. Government spending on a huge scale will continue until it destroys government credit unless business begins unitedly to oppose all unneeded spending. Public sentiment finally will compel business leaders to choose between competition and government regimentation, and the sooner they choose the former to make their opposition to regimentation consistent and effective, the better it will be for business.

Business men must choose whether they will favor a government policy with respect to agriculture and industry which will enable agriculture to sell its products in both the foreign and domestic markets, or a government policy which will maintain industrial and farm prices on a parity by continuing to subsidize agricultural restriction of production. Business men must choose whether they will favor continuance of a government transportation policy which is absolutely inconsistent with other government policies for which they profess to stand, and that will tend to protract depression and cause government ownership of railways and state socialism, or will favor a policy which will establish fair competition in transportation, tend to prevent government railway ownership, and help to revive the capital goods industries by enabling all carriers to increase their buying.

Economic Discussion Vitiated by Politics and Selfishness

In most discussions by public men there is an admixture of politics and economics which vitiates all that they say about present economic problems. In most discussions by business men there is an admixture of selfishness with economics which shows that they are not inspired primarily by consideration of what is necessary to revive all industry and commerce. This is natural, but it is not constructive or effective. The great mass of the people are less interested in regimentation and its constitutionality than in what causes a continuance of unemployment and of reduced incomes for the employed. Their continuance is caused by the fact that the national income is now only about $40,000,000,000, as compared with about $90,000,000,000 before the depression, and the only solution is to increase production and commerce by the adoption of government and business policies which will maintain agricultural and industrial prices on a reasonable parity and increase buying by the transportation and other industries from the durable goods industries.

The country is confronted with fundamental problems of government. It is confronted with them because it is confronted with fundamental problems of economics. To be effective in promoting recovery business leaders must adopt in their own business, and also advocate government adoption, of policies that will help to enlarge the markets of both industry and agriculture, while at the same time vigorously opposing government policies which tend to curtail their markets.



The de Luxe Coach Has Smooth Exterior Surfaces

Light-Weight Coaches Delivered to Boston & Maine

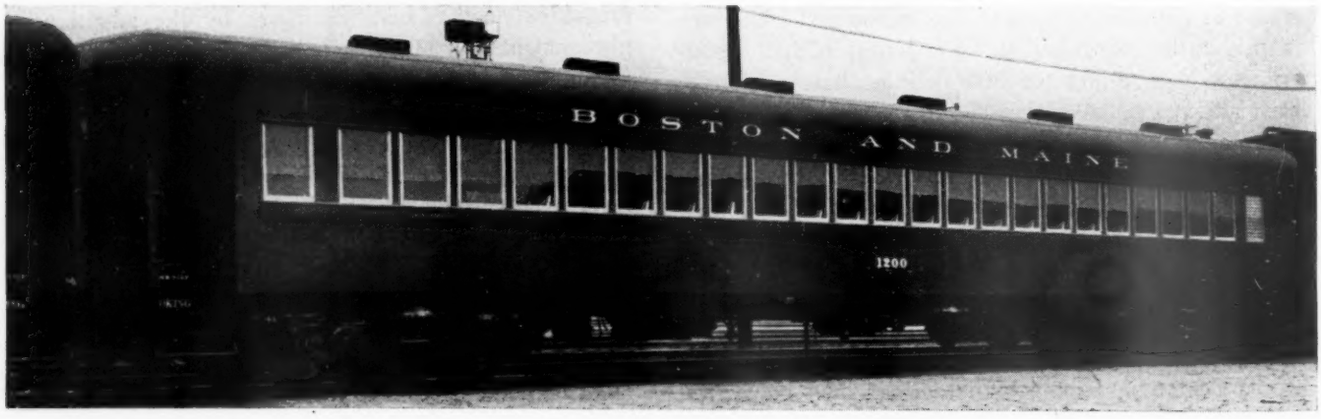
Alloy steels extensively used in construction of 10 beautifully decorated main-line and 21 suburban cars, built by the Pullman Bradley Car Corporation

THE Boston & Maine is receiving delivery of 10 partially streamline de luxe coaches for use in main-line service and 21 coaches for suburban service from the Pullman Bradley Car Corporation, Worcester, Mass. In the construction of the cars of both classes extensive use has been made of alloy steels to reduce the weight. The interiors of both types of car have been decorated in light color tones which, in the case of the de luxe coaches, have been given distinction by the skillful use of striping in contrasting colors. The de luxe coaches are fitted with electro-mechanical air-conditioning equipment. In both cars a simple, but unusual type of lighting fixture has been employed which provides a highly uniform distribution of light across the car at the reading level and effects a bright but well diffused lighting of all the surfaces of the car interior. Each main-line coach has seats for 84 persons; the suburban coaches seat 98 persons each.

The principal dimensions of the two types of coaches are shown in the table. Both are similar in structural design. The center sills, which are composed of two flanged channel pressings placed horizontally, one above the other, and separated by closely spaced single-piece cross-ties, and the draft sills are of Man-ten steel, while Cor-Ten steel has been extensively used in the other underframe and body members as well as for the side sheets and letter boards. The frame members are pressed-steel sections. The construction is of the type employed in the coaches recently built at the same plant for the New York, New Haven & Hartford. The main-line coaches, completely equipped, weigh 108,800 lb. each. The weight of the suburban coaches is 89,300 lb. each.

The de Luxe Coaches

In the de luxe coaches care has been taken to provide smooth exterior surfaces. The fixed window sash are placed as nearly flush with the outside sheathing as possible and the surface of the sheathing is unbroken from end to end of the car. The roofs are of turtle-back construction. The lower ends of the side posts are



The Suburban Coach Seats 98 Persons

Interior of the de Luxe Coach Photographed by Its Own Lighting —Striping is Vermilion on Buff Walls

curved in slightly where they join the side sills. The side sheets terminate at the bottom of the side sills.

The interior finish of the cars is Masonite Presdwood for the wainscot and ceilings and open-hearth steel sheets at the bulkheads and pier panels. The latter are corrugated to produce a fluted-column effect.

The floors are insulated with a 1-in. layer of lightweight Salamander which is laid on the sub-floor of light-gage Cor-Ten steel. Between the Salamander and the upper floor is a 1-in. air space. The upper floor consists of a light corrugated Cor-Ten steel plate, the corrugations of which are filled with cork and the whole surfaced with ½ in. of dense cork, over which the battleship linoleum wearing surface is applied.

The seats in the de luxe coaches are Heywood-Wakefield, two-passenger revolving-type chairs, without center arm rests. The cushion frames are of light tubular construction and considerable aluminum is used to reduce weight. Each double seat may be rotated independently, the operation being performed by first pulling the seat slightly toward the aisle, which unlocks it. When the rotation is completed the seat automatically locks by sliding back to its normal position with respect to the side of the car. The four seats at the bulkheads do not rotate.

The walls and ceilings of these coaches are finished in light colors which produce unusually well-lighted interiors at night as well as in the daytime. The ceilings and ends of the cars above the frieze panel are finished in ivory. The sides are in two shades of buff, the lighter of which is employed on the frieze and pier panels and the darker on the wainscot below the windows. The lighter shade is also used on the ends. The surfaces are without gloss. An unusual feature of the interior finish is the employment of the side-wall color on the parcels racks which are thus suppressed as a feature of the in-

Interior of the Suburban Coach. Photographed by Day Light—The Ceiling is Ivory and the Walls Buff

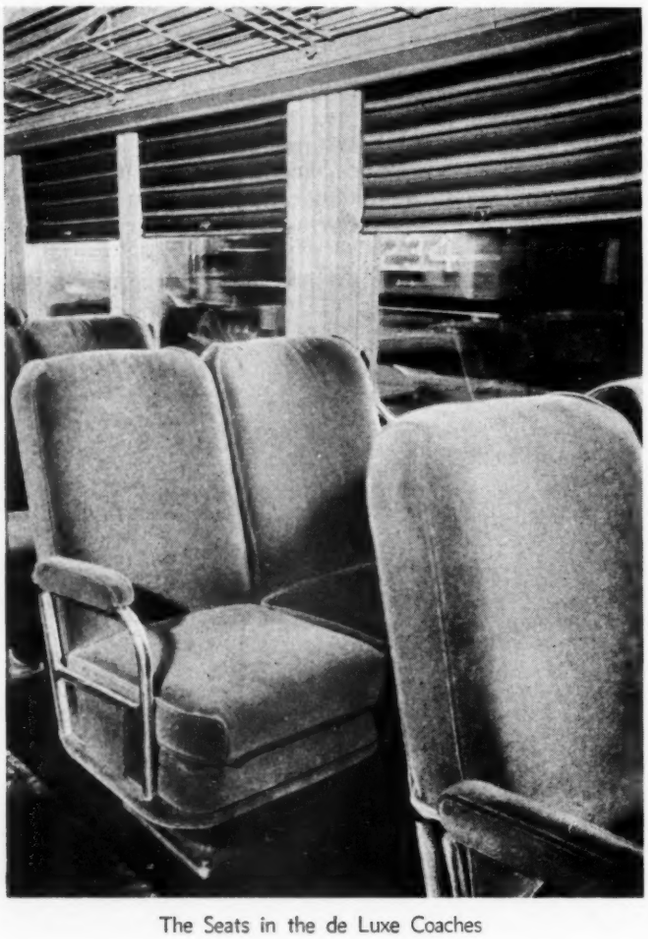
terior decoration. The monotony of the yellow tones is beautifully relieved by two vermilion moldings which form brilliant stripes of color between the ceiling and side walls, across the ends and at the sides of the doorways at each end of the passenger compartment. Further interest is added by a stripe in a soft blue-green tone on each side of the car between the tops of the window openings and the bottom of the parcels racks. These colors, together with the window sills, which are of black Micarta, and the Chase crosswise frieze upholstery in a soft green tone, give a pleasing color variety which is further heightened by the soft tones of tan and brown that produce the Venetian blind effect of the interior fabric of the window shades. The linoleum floor covering under the seats has a grained surface in dark brown, while the aisle is covered with Linotile in mottled squares of alternate brown and green.

Principal Dimensions of the Boston & Maine Passenger Coaches

	Main line	Suburban
Length over buffers	84 ft. ¼ in.	80 ft. 1½ in.
Length between bolster centers	58 ft. 8¾ in.	54 ft. 4 in.
Length inside	74 ft. 3⁹/₁₆ in.	69 ft. 11 in.
Maximum width over side sheathing	9 ft. 11⁵/₁₆ in.	9 ft. 11⁵/₁₆ in.
Width inside at wainscot	9 ft. 4⁹/₁₆ in.	9 ft. 5½ in.
Height from rail to top of roof	13 ft. 4¹/₁₆ in.	13 ft. 0 in.
Height from rail to vestibule floor	4 ft. 2⁵/₁₆ in.	4 ft. 2⁵/₁₆ in.
Height from rail to body floor	4 ft. 4 in.	4 ft. 4 in.
Window and seat spacing	3 ft. 3½ in.	2 ft. 8½ in.
Truck wheel base	8 ft. 0 in.	8 ft. 0 in.
Journal size	5 in. by 9 in.	5 in. by 9 in.
Wheel diameter	36 in.	36 in.
Weight of coaches	108,800 lb.	89,300 lb.

Each coach is provided with two toilets which are on opposite sides at the same end of the car. Both are fitted with porcelain basins provided with hot and cold water and porcelain flushing toilets. Each is fitted with a plate-glass mirror, a black Micarta shelf, and Nibroc paper towel dispensers. Masticoke floors are applied in the toilets.

Backs of the de Luxe Coach Seats



The Seats in the de Luxe Coaches

The cars are lighted by Spotray lens units, developed by Luminator Incorporated, Chicago, to meet the specifications of the railroad company and the car builders. There is a lighting unit over each seat, making a total of 42, arranged in two rows of 21 each. Each unit contains an inside-frosted, 25-watt lamp enclosed by a cylindrically shaped diffusing and distributing glass bowl.

The enclosing bowl is 3½ in. in diameter and 2½ in. deep. The bottom is formed in the shape of a clear condensing lens, which directs a major portion of the light downward and distributes it evenly over the reading plane. The controlled angle of each beam is such that the passenger is not disturbed by lights in front, nor troubled with shadows from lights behind.

The sides of the units have been fired with a dense white diffusing glass enamel, which delivers a small amount of light to illuminate the ceiling and gives a cheerful appearance to the car. The amount of diffused light is not sufficient to cause objectionable glare. The illumination varies between five and six foot-candles on a reading plane 45 deg. to the horizontal and between eight to ten foot-candles on a horizontal plane 36 in. above the floor when the voltage at the socket is 62. Diffusing enclosed bowl fixtures made by the Safety Car Heating & Lighting Company are used in the toilets and corridors and two deep bowl enameled reflectors made by the same company are used in each vestibule.

Power for air conditioning and lighting is supplied by a General-Electric direct-current generator, mounted inside the truck frame and driven from the axle by gears. The wheelbarrow or nose-suspended railway traction

The Walk-Over Type Seats in the Suburban Coaches

type of mounting is employed and the gears are rigid, there being no provision for slip couplings or shear pins. The machine has a continuous rating of 20 kw. at 1,100 r.p.m., delivering 267 amp. at 75 volts. The generator, complete with gear pinion, gear cover, axle collar, axle-bearing linings and spring-nose support assembly, weighs 1,640 lb

Generator control equipment, consisting of a reverse-current relay, main generator contactor, field contactor, voltage regulator and field reversing switch, are mounted on a panel in a car locker. This locker also includes lighting switches controlling two lighting circuits. Alternate pairs of lights are connected to each circuit.

The battery which supplies power when the generator is not working is an Exide Ironclad EPTA battery, rated 500 amp. hr. at 64 volts. A triple-pole double-throw battery switch, mounted on the end of one of the battery boxes, makes it possible to charge batteries from either 80-volt or 40-volt charging circuits.

The de luxe cars are fitted with General-Electric air-conditioning equipment. A motor, compressor and two condenser units are mounted in a single housing under the car. The condenser units are placed one at each end of the housing. Air enters through the condensers and is exhausted through the inside face of the housing by a fan on the end of the compressor-motor shaft.

The evaporator unit is installed above the ceiling over the hallway between the toilets. The air from the evaporator unit is conveyed into a large duct over the center of the ceiling, in the bottom of which are openings communicating with the diffusing duct which extends below the centre of the ceiling in the passenger compartment. The air passes from the diffusing duct through openings on both sides. Fresh air enters the system from the vestibule, and the recirculated air through a grille in the ceiling under the evaporator unit. Both fresh and recirculated air openings are protected by filters.

The cars are heated by the Vapor system, the radiation being divided between the floor radiators along both sides of the car and a radiator in the air-conditioning unit. This radiator is designed to provide a maximum of 90,000 B.t.u. per hour. The windows, which are double glazed in a single fixed sash of extruded aluminum, are sealed with dehydrated air between the panes. The car bodies are well insulated with Salamander throughout.

Suburban Coaches

The interior finish of the suburban coaches is in Masonite Presdwood, except for the ends of the passenger compartment which are of light open-hearth steel sheets. The ceilings in these coaches conform to the curve of the roof and ducts, one on each side of the center, projecting below the ceiling, form the base for the lighting fixtures.

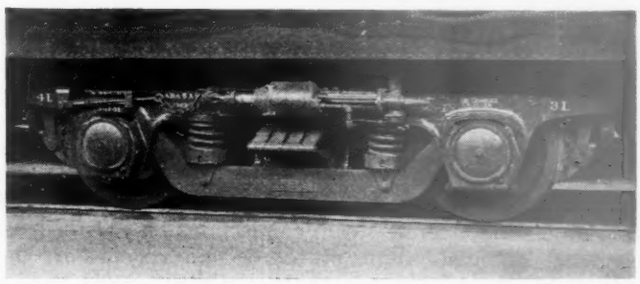
The floors in these cars are of Chanarch construction surfaced with Flexolith. The floors are insulated with a lead-clad flat steel sheet applied over the entire top surface of the underframe, below the floor stringers. Above this plate 1-in. Haircraft insulation is applied on 15 cars and 1-in. Salamander on the remaining six.

The seats are Heywood-Wakefield walk-over type, built on light tubular frames, and employing aluminum freely in their construction to keep down weight. In three of the cars the seats are upholstered with Pantasote, while those in 18 coaches are upholstered with the same material used in the de luxe coaches.

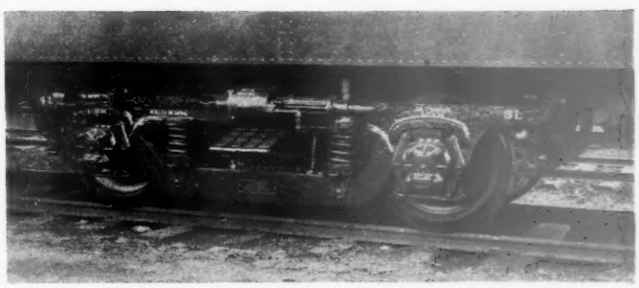
The same wall and ceiling colors are used in the suburban cars as are employed in the de luxe coaches, except that the lighter shade of buff extends to the floor. The parcels racks are finished in the wall color. A single chocolate stripe separates the ceiling and wall colors and outlines the end wall panels on either side of the doorways. The upholstery is in the same green tone as was employed in the de luxe coaches. The Flexolith floors are in a blue-gray tone.

Each of the suburban coaches is provided with one toilet which is equipped with a dry hopper.

Lighting in the suburban cars is similar in all re-



A de Luxe Coach Truck



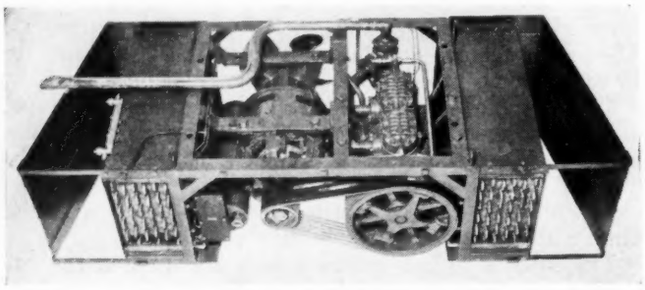
One of the Suburban Coach Trucks

spects to that in the de luxe coaches, except that 15-watt lamps are used in the place of 25-watt lamps and, since the seat spacing is less, there are 48 instead of 42 lighting units. Power for lighting is obtained from a 7½-kw. 40-volt generator mounted on the locomotive. A three-wire 4/0 train line in the ducts above the lighting fixtures is used to distribute the power from the generator to the lights and to equalize voltage through the length of the train.

The cars are equipped with Vapor heating equipment and side-wall radiation. Six Garland suction type ventilators are provided on each side of the roof. The single lifting sash, glazed with a single pane, are of aluminum, furnished by the O. M. Edwards Company. The sides and ceilings of the cars are insulated throughout with Salamander.

Trucks, Brakes and Other Equipment

Both types of cars are fitted with General Steel Castings four-wheel trucks with 5-in. by 9-in. axles and 36-in. rolled-steel wheels. The trucks for the ten de luxe coaches are provided with Isothermos type journal



The General-Electric Compressor-Condenser Air-Conditioning Unit

boxes, while those under the suburban cars are fitted with Fafnir roller-bearing journal boxes. All are equipped with Miner single-roller side bearings.

Fabreeka inserts have been employed under the side bearings and under the elliptic- and coil-spring seats of the trucks of both types of coaches to insulate the car body from high-frequency vibrations transmitted from the rail.

All of the coaches are fitted with New York Air Brake Company schedule U-12BD air-brake equipment and Simplex unit type clasp brakes with 8-in. by 8-in. cylinders on the trucks. Miner drop-handle hand brakes are provided at each end of all of the cars.

Among the other special equipment are Waugh Class B friction draft gear and Class H friction buffing gear on the de luxe coaches; Miner A-5-XB draft gear and B-10-XB buffing gear on the suburban coaches, and Barco flexible metallic steam connections on cars of both classes. The diaphragms on the de luxe coaches are the Pullman single-fold type with Pullman single-center-spring type of upper buffer spring. Fabreeka pads are inserted at the top and bottom of the platform buffer stems of the coaches of both types to reduce noise.

EMPLOYEES OF THE NORFOLK & WESTERN together with members of their families received during 1934 a total of $620,244 in benefits from the railroad's relief funds, according to the annual report of J. C. Snavely, superintendent of the relief and pension department. This fund which was established in 1917 has since that time paid approximately $9,075,000 for benefits, while receipts during that period have exceeded $12,000,000. Meanwhile the Norfolk & Western has spent $2,048,278.51 for the establishment, operation and maintenance of the department, these costs being borne entirely by the railroad.

N. I. T. League Takes Action on Legislation

THE National Industrial Traffic League called a special meeting at Cincinnati, Ohio, on April 4, to consider many of the bills now before Congress, which affect the transportation system of the country. In this meeting, the League went on record as unalterably opposed to any form of government ownership, to the proposals of the Co-ordinator to regulate highway, water and air transportation and to the continuance of a federal co-ordinator and in favor of the elimination of the long and short-haul clause of the Interstate Commerce Act.

The members also opposed the Co-ordinator's reorganization bill which provides that the commission be enlarged to 16 members with a chairman of the entire commission, a finance division, a railroad division, a water carrier and pipe line division, a motor carrier and air carrier division and a co-ordinator of transpotation, being of the opinion that no such broad and comprehensive authority should be vested in any control body or in any general chairman. It was felt that each of the respective divisions should preserve its independence and determine with finality those questions which might be presented except where that division or some other division feels that such determination should be reviewed by some further authority where all divisions are represented.

The Legislative committee, in its report, expressed the belief that there is no necessity for a separate finance division, for the activities of this division would be almost entirely confined to railroads, while in addition the questions involved in the financing of other transportation agencies may be materially different from those involved in railroad financing. The committee contended that the division having jurisdiction over the regulation of an agency should be the division to pass upon any financial question affecting such legislation to the extent that financing is subject to regulation.

Three I. C. C. Divisions Proposed

The League, which has expressed itself in favor of certain additional regulation of interstate and foreign commerce and in opposition to certain other additional regulation of such commerce, without changing or qualifying such expressions as to such regulation, decided that only in the event that federal regulation by the Interstate Commerce Commission of the rates and services of the various unregulated transportation agencies shall be undertaken, should such regulation be administered by three statutory divisions of the Interstate Commerce Commission. One of the divisions, under the proposal of the League, is to have jurisdiction over railroads and perhaps also pipe lines and aviation, the second jurisdiction over highway motor transportation, and the third over water carriers. Each division should have authority to select its own chairman, as is now done by the commission in its present organization and the chairman of the three divisions would constitute a general policy board which, in turn, would select its own chairman who would be the general chairman of the policy board and of the entire commission. In all matters involving general questions of transportation policy, as between competitive agencies, the policy board would have jurisdiction to settle and determine upon the policy which would be pursued by the division administering it. The jurisdiction of the policy board could

(*Continued on page 582*)

Railway Supply Inventories Up Six Million

Larger material requirements and higher prices cause first net increase in seven years—Turnover better

A TWO-PER CENT increase in annual inventories, following a 27-per cent increase in the total value of material consumed by the railroads, is disclosed by the annual review of railway material stocks which the *Railway Age* has compiled for the year 1934, with the co-operation of the railroads. In this summary, which is the most complete and detailed of the railway supply situation that has yet been made, the Class I roads of the United States are shown to have had in stock at the close of 1934, as reported to the Interstate Commerce Commission, unapplied materials and supplies, including unsold scrap, having a book value of $297,465,000. This was $6,167,000, or 2 per cent, higher than the corresponding inventory of the year previous and is the first increase that has occurred in aggregate book values of unapplied materials since 1926. It was, however, $469,802,000, or 61 per cent, under the inventory of all railroads in 1920; $179,586,000, or 38 per cent, under the inventory of 1929; $139,910,000, or 32 per cent, under 1930; $82,527,000, or 22 per cent, under 1931; and $24,130,000, or 7.5 per cent, below 1932; and was the least capital tied up in unapplied materials since 1915, when the total was $248,888,000.

Table I—Materials and Supplies On Hand—United States Railroads

	Amount	Reduction	Per Cent of Op. Exp.	Per Cent of Op. Rev.
June 30, 1911....	$244,932,000		8.6	12.4
June 30, 1912....	246,790,000	+$1,858,000	8.5	12.1
June 30, 1913....	300,601,000	+53,811,000	9.4	13.4
June 30, 1914....	278,940,000	21,661,000	8.9	12.2
June 30, 1915....	248,888,000	30,052,000	8.4	11.9
Dec. 31, 1916....	333,361,000	+84,473,000	9.0	13.7
Dec. 31, 1917....	514,051,000	+180,690,000	12.5	17.6
Dec. 31, 1918....	641,759,000	+127,708,000	12.9	15.8
Dec. 31, 1919....	608,527,000	33,232,000	11.6	13.5
Dec. 31, 1920....	767,267,000	+158,740,000	12.1	12.9
Dec. 31, 1921....	676,125,000	91,142,000	12.0	14.4
Dec. 31, 1922....	556,260,000	119,865,000	9.7	12.3
Dec. 31, 1923....	693,078,000	+136,818,000	10.8	13.9
Dec. 31, 1924....	569,690,000	123,388,000	9.4	12.3
Dec. 31, 1925....	535,126,000	34,564,000	8.6	11.5
Dec. 31, 1926....	561,007,000	+25,881,000	8.6	11.8
Dec. 31, 1927....	532,063,000	28,944,000	8.5	11.4
Dec. 31, 1928....	478,625,000	53,438,000	7.7	10.6
Dec. 31, 1929....	477,051,000	1,574,000	7.5	10.4
Dec. 31, 1930....	437,375,000	39,676,000	8.2	11.0
Dec. 31, 1931....	379,992,000	57,383,000	8.9	11.5
Dec. 31, 1932....	321,595,000	58,397,000	10.8	13.1
Dec. 31, 1933....	291,298,000	30,297,000	9.4	12.9
Dec. 31, 1934....	297,465,000	+6,167,000	9.1	12.1

Note: Totals for 1934 and 1935 restricted to Class I railroads, excluding switching and terminal companies, as reported by I.C.C. For corresponding totals for all roads and subsidiaries, pending publication of I.C.C. figures, add one per cent.

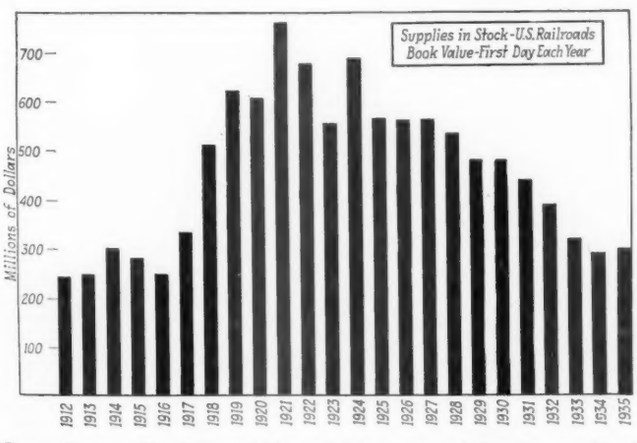


Chart Showing Total Book Value of Materials and Supplies on Hand on All Railroads on the First of Each Year

Relation of Annual Inventories of All Railroads at the End of Each Year to the Aggregate Operating Expenses and Operating Revenues During Each Year

The inventory on December 31, 1934, totaled 9.1 per cent of total operating expenses for the year, as compared with 9.4 per cent the year previous and 10.8 per cent for 1932, 8.9 per cent for 1931, and 7.5 per cent for 1929. It was 12.1 per cent of the gross operating revenues in 1934, as compared with 12.9 per cent in 1933, 13.1 per cent in 1932, 11.5 per cent in 1931 and 10.4 per cent in 1929. The inventory, while somewhat larger in the aggregate than in 1933, was thus somewhat smaller in proportion to the amount of business done, as measured by annual operating expenses and operating revenues, than in the previous year, although still larger on this basis than inventories of 1929, 1930 and 1931.

The inventory on December 31, 1934, indicated a 4.6 months' supply at the 1934 rate of material consumption, as compared with a 5.8 months' stock in 1933, 5.9 months' in 1932, 4.5 months' in 1931, 3.8 months' in 1930 and 3.4 months' in 1929.

Based on subdivisions reported by 100 companies operating 230,000 miles of line, approximately 6.7 per cent of the inventory, or $19,930,000, was locomotive fuel, as compared with $18,160,000 on December 31, 1933, and $20,200,000 at the close of 1931. Approximately 12.4 per cent, or $36,885,000, was new and second-hand rail, as compared with $34,000,000 in 1933 and $48,300,000 in 1932. The cross-tie stock amounted to

Table II—Materials and Supplies Used

Road	Locomotive Fuel: On Hand, Dec. 31	Locomotive Fuel: Used, 1934	Locomotive Fuel: Days' Stock	Rail—New and Relay: On Hand, Dec. 31	Rail—New and Relay: Used, 1934	Rail—New and Relay: Months' Stock	Cross Ties: On Hand, Dec. 31	Cross Ties: Used, 1934	Cross Ties: Months' Stock
Akron, Canton & Youngstown	$2,701	$77,060	12	$2,225	$3,375	7	$17,777	$66,614	3
Alton	27,159	727,103	13	324,741	440,825	8	170,318	452,549	4
Ann Arbor	10,929	430,778	9	20,405	8,915	27	18,481	58,816	..
A. T. & S. F. Lines (inc. G. C. & S. F.)	3,116,224	9,927,323	115	2,923,264	1,633,698	21	4,794,398	2,097,035	27
Atlanta, Birm. & Coast	9,801	202,303	17	14,819	24,180	7	27,286	89,161	3
Atlantic Coast Line	556,674*	3,286,093*	62	435,545	773,860	6	429,802	1,044,137	4
Char. & West. Carol.	8,663	149,793	21	88,813	35,685	30	19,333	66,620	3
Baltimore & Ohio	217,253	7,884,844	10	1,326,233	654,316	24	1,499,863*	1,613,986*	11
Balt. & Ohio Chicago Terminal	12,324	435,193	10	94,295	16,928	68	2,963*	82,500*	..
Bangor & Aroostook	115,087	430,417	97	96,101	151,775	7	94,663	105,550	10
Belt Railway of Chicago	20,049*	465,636*	15	56,672	45,213	15	41,575	61,416	8
Boston & Albany	109,474	2,115,177	18	160,814	92,807	21	237,913	202,397	14
Boston & Maine	213,044	3,560,837	21	693,141	1,450,013	5	1,442,358	714,755	24
Butte, Anaconda & Pacific	295	2,967	36	33,701	436	..	28,935	7,561	46
Cambria & Indiana	691	.....	..	2,857	.....	..	287	.....	..
Central of Georgia	52,768	988,930	19	224,771	200,049	13	211,832	215,013	11
Central of New Jersey	121,290	2,002,301	22	185,470	41,377	54	265,915	82,989	39
Central Vermont	34,692	583,695	21	86,045	72,674	14	31,356	157,185	2
Chicago & Eastern Illinois	17,177	777,203	8	66,301	262,431	3	141,523	178,942	9
Chicago & Illinois Midland	1,865	137,197	5	24,487	87,940	3	24,020	12,962	22
Chicago & North Western	229,543	4,300,419	19	1,486,006	1,536,838	11	1,766,918	1,411,658	15
Chic., St. P., Minn. & O.	60,592	1,583,488	14	11,159	72,904	2	.....	326,677	..
Chicago & Western Indiana	6,868*	129,554*	19	38,855	67,982	6	29,973	42,861	8
Chicago, Burl. & Quincy	410,200	4,241,300	35	949,709	1,055,692	11	2,175,007	1,486,099	17
Chicago Great Western	20,381	1,421,423	13	65,746	217,086	3	2,589	408,038	1
Chicago, Ind. & Louisville	12,432	404,414	11	76,791	26,612	3	68,778	77,698	10
Chicago, Mil., St. P. & P.	342,401	5,536,452	22	1,400,592	510,678	33	2,033,893	2,730,914	8
Chicago, R. I. & P. Lines	303,900	5,130,920	21	240,813	453,283	6	569,589	834,749	8
Clinchfield	4,621	224,512	8	100,750	48,121	25	135,189	109,029	14
Colorado & Southern	31,308	390,988	29	31,057	60,122	6	23,854	149,913	19
Fort Worth & Denver City	76,350	323,684	86	31,338	16,781	22	67,834	36,693	22
Wichita Valley	1,091	28,366	14	6,155	1,957	32	30,388	15,605	23
Columbus & Greenville	1,599	73,974	8	4,689	1,909	29	1,392	37,714	1
Delaware & Hudson	474,187	1,869,468	93	89,866	398,880	2	246,419	432,564	6
Del., Lack. & Western	184,083	3,892,836	17	282,155	574,596	5	141,178	356,904	4
Denver & Rio Grande Western	43,563	1,235,953	13	535,189	232,600	27	190,916	677,789	3
Detroit & Mackinac	8,762	62,512	51	10,124	2,487	5	13,863	17,440	9
Detroit & Toledo Shore Line	2,697	129,957	7	11,077	4,922	27	38,276	20,290	22
Detroit, Toledo & Ironton	4,442	228,564	7	60,065	29,611	24	90,938	106,075	10
Duluth, Missabe & Northern	282,025	514,255	200	87,065	30,831	34	227,428	114,499	23
Elgin, Joliet & Eastern	19,485	426,594	17	75,022	32,709	27	67,836	208,860	3
Erie System	149,976	4,410,934	12	447,094	1,761,735	3	841,842	807,516	12
Florida East Coast	135,232	658,894	75	112,769	81,745	16	79,190	149,779	6
Fort Smith & Western	108	36,332	1	4,695	185	..	10,295	34,878	3
Georgia & Florida	4,202	110,513	14	53,818	6,405	..	7,912	63,126	..
Grand Trunk Western	93,358	1,591,340	21	321,553	233,253	16	47,927	378,400	1
Great Northern	1,036,669	5,672,345	67	818,579	1,099,468	9	1,325,911	1,183,259	13
Green Bay & Western	7,014	148,455	17	67,918	5,951	..	56,541	72,282	9
Gulf, Mobile & Northern	4,519	257,162	6	53,675	139,105	4	48,066	113,402	5
Illinois Central System[1]	176,254	5,659,415	13	1,238,627	1,120,069	13	1,230,325	1,204,459	12
Illinois Terminal	1,423	61,211	8	13,471	75,542	2	50,790	50,224	12
Kansas City Southern	247,441	.....	..	44,988	.....	..	268,417†	.....	..
Lake Superior & Ishpeming	73,495	60,246	440	16,399	11,641	17	12,737	24,637	6
Lehigh & Hudson River	3,821	104,440	13	4,407	45,731	1	7,584	11,433	8
Lehigh & New England	49,256	246,495	73	115,266	109,414	12	29,046	41,635	8
Lehigh Valley	118,023	3,464,731	12	162,933	211,706	9	361,447	282,105	15
Louisiana & Arkansas	47,922	144,484	121	33,085	46,720	8	212,003	113,751	22
Louisiana, Arkansas & Texas	9,867	33,334	108	23,290	7,305	38	29,739	41,348	8
Louisville & Nashville	208,099	3,913,087	19	1,123,883	585,851	23	1,893,334	992,457	23
Maine Central	34,426	1,016,734	12	151,679	213,214	8	203,798	288,093	8
Minn., St. P. & S. S. Marie	128,907	1,704,168	27	150,809	114,981	15	436,232	662,105	7
Duluth, S. Shore & Atlantic	9,567	20,386	17	42,468	20,967	24	7,339	50,468	1
Mississippi Central	2,922	37,075	29	4,882	3,193	18	3,440	25,108	1
Missouri & North Arkansas	1,005	76,664	5	10,533	5,675	22	3,490	56,393	1
Missouri-Kansas-Texas Lines	527,974*	1,580,843*	121	342,537	82,236	50	658,439*	642,188*	12
Missouri Pacific System[2]	708,921	5,291,928	48	950,295	1,217,340	9	1,678,772	2,438,328	8
Gulf Coast Lines[2]	160,742	466,645	120	199,628	224,175	10	128,131	115,783	13
Mobile & Ohio	29,221	510,948	20	148,900	79,720	22	9,797	263,326	..
Monongahela	809	101,087	3	21,040	87,596	2	7,089	70,268	1
Montour	703	74,456	3	11,978	12,119	11	197	17,732	..
Nashville, Chat. & St. Louis	141,985	827,922	63	166,525	124,186	16	283,673	294,764	11
Nevada Northern	4,313	44,476	35	8,358	1,046	96	23,750	18,376	15
New York Central Lines[4]	1,365,732	.....	..	2,468,296	.....	..	3,121,804	.....	..
New York, New Haven & Hart.	307,023	4,041,832	27	1,434,937	185,878	93	490,056	471,641	12
Norfolk & Western	191,006	.....	..	463,463	.....	..	936,403	.....	..
Norfolk Southern	21,668	282,187	28	86,090	119,920	8	27,544	249,921	1
Northern Pacific	293,297	4,556,659	23	682,228	380,099	21	1,198,303	817,653	17
Pennsylvania	670,964	17,925,351	14	1,733,141	1,802,513	11	3,567,039	2,764,111	15
Long Island	51,210	783,176	..	50,218	70,069	8	33,889	117,197	3
Penna.-Read. S. S. Lines	16,964	.....	..	72,558	.....	..	4,046	.....	..
Peoria & Pekin Union	3,216	93,510	12	18,579	37,413	5	19,175	25,196	9
Pere Marquette	150,882	1,899,054	29	109,484	221,583	5	151,880	473,373	3
Pittsburg & Shawmut	1,141	30,767	13	5,002	17,220	3	5,497	30,436	2
Pittsburg, Shawmut & Northern	2,663	53,028	18	16,640	8,851	22	4,173	59,255	1
Reading	146,254	4,043,472	13	815,199	320,519	30	556,855	223,873	29
Richmond, Fred. & Potomac	57,122	535,833	39	23,068	70,783	39	40,063	104,197	4
Rutland	43,874	396,000	40	30,699	49,548	7	45,067	78,144	7
St. Louis-San Francisco Lines[5]	181,255*	3,345,450*	19	443,711	788,451	6	1,072,000	2,838,370	4
St. Louis Southwestern Lines	219,853	732,053	108	202,919	62,503	39	106,240	173,451	7
Seaboard Air Line	773,039	2,239,624	126	731,024	1,228,785	7	610,495	989,360	7
Southern System[6]	270,117	5,895,742	16	461,114	843,798	6	890,556	2,848,704	3
Southern Pacific—Pac. Co.[7]	1,375,625	9,852,168	51	1,774,807	2,704,224	7	1,172,506†	908,400†	15
Northwestern Pacific	37,483	254,892	21	57,127	51,264	13	16,417†	42,216†	4
San Diego & Ariz. Eastern	2,587	59,100	15	5,151	4,980	12	18,955†	24,276†	9
Spokane-International	3,800	55,350	25	32,398	4,753	82	750	26,475	..
Spokane, Port. & Seattle	57,383	501,350	41	106,403	62,487	20	16,787	97,476	2
Terminal R. R. Ass'n of St. Louis	8,998	435,620	7	69,255	36,033	23	19,443	26,582	8
Texas & New Orleans	662,956	1,687,209	143	816,208	605,285	16	650,027	504,151	15
Union Pacific System[8]	711,954	8,365,733	31	2,569,480	741,961	41	1,805,300	2,120,544	10
Utah	362	25,525	5	28,303	398	..	29,695	17,286	20
Virginian	10,910	475,619	8	99,925	132,214	9	210,295	192,033	13
Wabash	65,998	2,282,891	10	212,961	550,436	4	351,144	707,292	5
Western Maryland	63,293	748,945	31	35,066	149,552	2	243,563	312,783	9
Western Pacific	82,970	833,781	33	290,787	361,801	9	101,883	253,451	4
Wichita Falls & Southern	1,097	21,471	18	12,386	179	..	9,606	26,955	4
Total 96 roads	$16,113,852	$170,867,257	34	$31,160,225	$29,377,625	13	$39,117,663	$43,559,910	11

* All fuel.

* All ties.
† Cross and switch ties.

[1] Includes Y. & M. V. and G. & S. I. [2] Includes I. G. N. and Gulf Coast Lines. [3] Includes N. O. T. & M., St. L. B. & M., B. S. L. & W., S. A. U. & N. A., C. N. O. & T. P. [4] Excludes $2,317,642 fuel and supplies for steamship lines. [5] Includes L. A. & S. L., O.-W. R. R. & Nav., O. S. L., St. J. & G. I.

Note: Data missing where blank spaces occur in table.

and Carried by Class I Railroads in 1934

Miscellaneous—Less Scrap				Total—Less Scrap							Per Cent of Op. Exp.		
On Hand, Dec. 31	Per Cent Red.	Used, 1934	Months' Stock	Used, 1934	Per Cent Inc.	Months' Stock on Hand	Scrap on Hand, Dec. 31	Total on Hand, Plus Scrap	Decrease From Prev. Year	Per Cent Red.	1934	1933	Road
$65,014	8	$130,719	6	$277,768	30	3.8	$5,020	$93,023	+$5,624	+6.5	8.1	8.5	A. C. & Y.
637,683	+56	1,907,521	4	3,527,998	64	3.9	19,358	1,179,259	+553,211	+88.5	11.4	6.7	Alton
180,376	12	311,113	7	809,622	14	3.4	7,193	237,578	28,072	10.5	9.2	11.1	Ann Arbor
6,731,654	+7	15,973,644	5	29,631,703	14	7.1	68,553	17,634,095	+711,350	+4.2	17.3	18.0	A. T. & S. F.
187,054	..	392,080	5	707,724	..	4.0	58,990	297,951	+23,499	+8.5	10.4	10.6	A. B. & C.
1,743,989	+11	4,944,532	4	10,548,613	10	3.6	38,307	3,204,319	+11,557	+3.6	10.3	11.7	A. C. L.
94,793	+26	161,637	7	413,737	16	6.1	16,173	227,777	+8,579	+3.9	17.0	17.4	C. & W. C.
5,760,370	+15	20,076,339	3	30,229,485	30	3.5	312,968	9,116,687	964,406	9.5	9.2	11.9	B. & O.
176,863	..	974,634	2	1,509,255	..	2.3	2,764	289,209	+54,513	+23.2	10.6	9.0	B. & O. C. T.
509,688	+6	703,898	8	1,391,640	21	7.0	11,710	827,249	4,751	.6	21.0	23.4	Bang. & Aroos.
155,734	..	263,885	7	836,150	..	3.9	36,449	310,479	+90,290	+41.0	11.4	8.9	Belt
1,130,240	+13	1,702,045	8	4,112,428	8	4.8	37,555	1,675,998	+267,542	+19.0	12.0	10.5	B. & A.
2,666,082	+8	6,077,714	5	11,803,319	41	5.1	38,284	5,052,910	+85,377	+1.7	16.3	16.1	B. & M.
191,169	..	96,291	24	107,255	..	2.9	12,821	266,921	.....	...	55.0	...	B. A. & P.
39,231	..	.....	..	.....	..	..	3,756	46,825	.....	...	4.5	...	C. & I.
516,467	5	1,554,396	4	2,958,388	31	4.1	58,311	1,064,149	+110,477	+11.6	9.4	9.2	C. Ga.
1,191,883	..	3,287,691	4	5,414,360	27	3.9	191,326	1,955,886	+196,997	+11.2	9.7	8.9	C. N. J.
315,954	+5	593,629	6	1,407,185	13	4.0	10,497	478,546	56,106	10.4	10.5	12.2	C. Vt.
376,221	3	1,535,122	3	2,753,698	26	2.6	14,384	615,678	+32,150	+5.5	6.2	6.0	C. & E. I.
220,207	+8	514,607	5	752,706	51	4.3	6,339	276,918	12,850	4.4	12.9	15.0	C. & I. M.
4,493,819	+8	11,187,673	4	18,436,590	22	5.2	25,543	8,001,832	+286,029	+3.7	12.9	13.4	C. & N. W.
611,780	+8	1,755,392	4	3,738,461	22	2.2	16,879	700,410	219	...	5.6	6.3	C. St. P. M. & O.
214,592	..	490,876	5	731,273	..	4.8	26,625	316,913	.....	...	...	...	C. & W. I.
4,424,639	+17	11,828,331	4	18,611,422	−6	5.1	526,074	8,485,629	+761,482	+9.8	14.6	14.2	C. B. & Q.
365,598	+3	1,493,990	2	3,540,540	15	1.5	117,848	572,165	+74,852	+15.0	5.1	4.8	C. G. W.
523,991	..	598,316	10	1,107,040	..	7.0	15,040	967,032	+16,921	+2.4	10.7	11.8	C. I. & L.
5,058,670	+4	10,727,509	6	19,505,553	23	5.5	280,804	9,116,360	+458,233	+5.2	13.1	13.4	C. M. St. P. & P.
3,761,165	−4	8,492,433	5	14,911,385	30	3.9	183,630	5,059,097	473,263	8.5	8.9	10.5	C. R. I. & P.
237,125	6	493,744	5	875,406	28	6.5	91,383	569,068	+43,566	+8.2	19.0	19.5	Clinchfield
185,909	20	622,386	3	1,233,409	17	2.7	44,148	316,276	124,520	2.8	6.9	10.2	C. & S.
262,883	1	385,069	8	762,227	42	6.9	18,931	457,336	+44,968	+10.9	12.0	12.3	F. W. & D. C.
13,718	20	27,133	6	73,061	26	8.4	219	51,571	+15,485	+43.0	15.8	10.7	W. V.
114,648	+6	148,108	9	261,705	30	5.6	1,222	123,550	+5,316	+4.5	14.5	16.5	C. & G.
1,482,023	+2	3,559,884	5	6,259,596	−42	4.4	74,991	2,355,549	276,130	10.5	11.5	12.9	D. & H.
1,353,419	+7	5,380,764	3	10,205,100	1	2.3	115,008	2,060,175	+232,102	+12.7	5.8	5.3	D. L. & W.
1,642,550	+13	4,003,658	4	6,150,000	41	4.7	30,943	2,443,161	+238,170	+10.8	16.7	18.5	D. & R. G. W.
124,709	+11	51,259	39	134,059	−2	14.0	3,188	160,648	+8,413	+5.5	31.0	30.0	D. & M.
66,190	+1	137,274	5	292,443	30	4.9	747	118,988	+12,682	+11.9	8.5	8.4	D. & T. S. L.
318,525	9	584,256	6	948,506	40	6.0	2,612	476,583	+10,607	+22.8	15.8	19.1	D. T. & I.
395,300	+2	1,356,881	3	2,016,466	32	6.0	31,453	1,023,271	+20,710	+2.0	15.2	17.5	D. M. & N.
795,118	11	1,105,413	8	1,773,576	−2	6.5	27,765	985,226	148,039	13.1	13.5	15.0	E. J. & E.
1,931,436	+1	9,334,200	2	16,314,385	14	2.5	577,366	3,947,715	+268,317	+7.3	6.3	6.7	Erie
1,084,114	4	842,442	15	1,732,862	32	9.8	46,916	1,458,223	243,506	14.2	27.8	30.8	F. E. C.
171,035	+12	49,293	42	120,689	20	18.6	.....	186,135	+25,337	+15.7	25.8	27.0	F. S. & W.
74,923	+20	145,939	..	325,983	6	..	35,193	176,048	+83,213	+89.5	9.2	10.0	Ga. & Fla.
931,138	+4	1,998,382	5	4,221,376	6	4.0	96,856	1,490,835	+72,548	+0.5	9.6	10.4	G. T. W.
3,800,706	..	.....	..	.....	..	..	.....	6,981,865	+814,959	+13.2	12.7	14.7	G. N.
159,841	..	125,418	15	352,107	..	9.9	5,393	296,709	+16,183	+5.7	28.0	30.2	G. B. & W.
305,962	2	483,991	7	993,660	50	4.9	16,729	429,460	3,480	0.7	11.4	15.1	G. M. & N.
5,352,260	+6	17,520,972	3	25,504,915	65	3.8	362,635	8,360,101	+918,303	+12.3	11.0	12.0	I. C. Sys.
247,048	..	495,344	5	682,321	..	5.5	2,184	314,916	+180	...	9.2	9.8	I. T.
588,697	15	.....	..	.....	..	..	26,272	1,175,818	109,207	8.5	18.0	18.7	K. C. S.
122,606	4	121,154	12	217,678	57	12.5	4,313	229,550	+6,797	+3.0	24.0	27.0	L. S. & I.
46,850	12	109,448	5	271,052	20	2.7	2,161	65,823	18,568	22.0	0.8	8.6	L. & H. R.
215,734	..	390,592	6	788,136	..	6.2	9,579	418,882	+62,478	+17.4	13.7	15.5	L. & N. E.
1,832,047	12	6,554,439	3	10,512,981	23	2.8	92,305	2,566,755	360,943	12.3	9.5	9.7	L. V.
345,495	+26	613,188	6	908,143	12	8.5	3,736	642,241	+208,220	+48.0	21.8	16.1	L. & A.
100,390	+15	82,006	14	163,994	−10	11.9	1,838	165,126	+54,484	+49.5	22.4	16.2	L. A. & T.
4,512,905	15	5,764,912	9	11,256,307	24	8.2	1,128,381	8,866,602	436,698	4.7	16.5	18.4	L. & N.
879,165	+6	1,286,415	8	2,804,456	28	5.4	15,620	1,284,688	+120,544	+10.4	16.0	15.4	Me. C.
1,163,449	9	1,490,347	9	3,971,601	−5	5.6	32,401	1,911,799	39,371	2.0	10.5	10.8	Soo
180,728	1	177,128	12	632,430	60	4.6	6,300	246,402	26,007	15.1	15.0	16.7	D. S. S. & A.
48,519	..	47,250	12	112,626	..	6.3	1,650	61,413	13,497	18.0	10.4	13.5	Miss. C.
101,308*	..	48,250	25	186,982	..	7.4	.....	116,336	23,575	16.9	15.8	19.7	M. & N. A.
1,514,720	+11	3,793,256	4	6,098,525	17	6.0	158,006	3,201,679	+538,876	+49.5	15.5	14.0	M-K-T.
6,459,915	..	13,559,928	4	22,507,524	..	5.2	140,262	9,986,757	+1,319,131	+15.2	13.2	12.7	M. P. Sys.
450,443	5	1,643,378	3	2,449,983	13	4.6	32,410	971,357	27,651	2.7	15.1	18.0	G. C. Lines
479,457	..	1,051,746	5	1,905,740	..	4.2	49,770	717,145	+22,774	+3.3	9.6	10.1	M. & O.
222,933	..	234,963	11	493,914	..	6.1	409	246,748	7,864	3.1	15.7	19.1	Monong.
132,987	+4	228,892	6	333,199	16	5.2	7,286	153,150	+8,359	+5.8	13.5	13.1	Montour
928,731*	2	1,514,457	7	2,761,331	..	6.6	.....	1,520,916	+3,504	+0.2	13.7	14.0	N. C. & St. L.
59,422	6	35,226	20	99,124	14	11.6	396	97,343	5,231	5.1	34.2	37.0	N. N.
21,578,941	7	.....	..	.....	..	..	968,770	29,786,800	2,588,202	8.0	12.5	15.0	N. Y. C. Lines
4,365,172	..	9,632,335	5	14,331,687	..	5.5	43,450	6,658,641	+925,198	+16.1	12.6	11.6	N. Y., N. H. & H.
3,556,142*	+11	.....	..	.....	..	..	98,668	5,171,285	+261,713	+5.3	11.6	12.6	N. & W.
247,564	+30	407,550	7	1,059,579	51	4.3	.....	382,869	+135,408	+55.0	10.6	6.9	N. S.
3,677,546	+5	7,253,733	6	13,008,144	19	5.4	202,681	6,054,057	+251,399	+4.3	14.5	14.9	N. P.
18,517,153	..	59,033,713	3	81,525,535	22	3.6	987,911	24,375,791	2,062,161	7.8	9.7	11.7	Penna.
762,384	+9	1,781,773	5	2,752,215	15	3.9	11,345	878,129	+99,647	+13.0	45.5	5.1	L. I.
69,251	..	.....	..	.....	..	..	11,499	162,875	+30,345	+22.8	2.9	3.2	P.-R. S. S. Lines
105,316	..	349,896	3	506,015	..	3.5	839	147,125	+12,271	+9.1	19.4	18.6	P. & P. U.
700,651	+5	2,550,198	3	5,144,208	22	2.6	66,427	1,179,324	65,143	5.2	6.1	7.0	P. M.
74,864	7	56,879	15	135,302	−12	7.7	6,214	92,718	25,706	21.7	15.6	21.0	P. & S.
82,692*	..	.....	..	.....	..	..	.....	106,169	+7,701	+9.8	12.0	11.9	P. S. & N.
3,439,006	..	5,467,837	7	10,055,701	34	5.9	127,516	5,082,933	157,904	30.0	13.5	15.6	Reading
618,297*	3	737,260	10	1,448,073	18	6.1	.....	738,550	16,042	2.1	14.7	16.3	R. F. & P.
228,285*	..	302,868	9	826,440	..	5.0	.....	386,516	59,504	13.3	12.6	14.7	Rutland
2,677,347	1	6,725,374	4	13,697,647	18	5.0	65,460	4,439,776	+429,922	+10.7	12.3	11.8	St. L. S. F. Lines
675,319	26	1,229,435	6	2,197,442	68	6.7	.....	1,204,332	1,126,858	48.4	12.3	25.6	St. L. Sw. Lines
1,718,616	+2	5,120,946	4	9,578,717	30	4.8	92,564	3,929,741	+1,111,865	+39.5	13.5	10.9	S. A. L.
3,474,661	1	9,135,377	4	18,723,621	35	3.2	482,212	5,578,659	+216,984	+40.4	7.6	8.0	Sou. Sys.
5,238,828	+10	14,636,556	4	28,101,348	−41	4.1	841,701	10,403,467	+889,242	+9.4	12.8	12.9	S. P.-Pac. Lines
127,893	25	267,396	5	615,768	−41	4.9	10,837	250,374	42,415	14.5	8.6	11.8	Nw. P.
40,400	..	63,420	7	151,776	..	5.9	8,018	75,712	13,929	15.5	15.0	18.7	S. D. & A. E.
.....	..	.....	..	.....	..	..	7,594	77,385	14,064	15.4	15.6	19.6	S.-I.
282,822	..	861,249	3	1,522,563	..	3.6	7,166	409,562	+53,898	+15.1	9.1	12.5	S. P. & S.
289,356	..	628,012	5	1,126,247	..	4.1	16,715	403,767	+8,254	+2.1	8.1	11.8	T. of St. L.
2,188,550	+6	5,879,891	4	8,676,536	40	6.0	172,994	4,490,735	+485,866	+12.1	16.8	16.7	T. & N. O.
10,201,560	+13	13,723,233	9	24,951,473	23	7.4	219,921	15,508,218	+713,854	+4.8	18.2	19.4	U. P.
133,144	1	45,358	35	88,567	−17	26.0	1,391	192,895	+9,617	+5.3	35.2	26.6	Utah
1,087,899	10	1,533,298	8	2,333,164	..	7.2	45,786	1,455,106	55,247	3.7	21.7	23.2	Virginian
1,026,304	5	4,080,641	3	7,621,260	24	2.6	54,715	1,711,123	109,150	6.0	6.0	7.1	Wabash
1,035,733	+8	2,011,216	6	3,222,496	60	5.2	38,097	1,416,382	+180,969	+14.6	15.1	15.7	W. Md.
1,141,275	+1	1,033,025	13	2,482,058	46	7.8	158,733	1,775,648	12,486	0.7	18.2	20.2	W. P.
30,209	+12	21,395	17	70,001	6	9.0	113	53,414	333	0.6	13.2	13.6	W. F. & S.
$143,009,084	..	$348,301,288	5	$592,988,474	27	4.6	$10,049,087	$293,382,585	+$4,906,256	2.0	9.1	9.4	119 companies and subsidiaries.

*Includes scrap.

G. [4]Includes Mich. C., C. C. C. & St. L., B. & A., P. & L. E., I. H. B. and Chic. J. [5]Includes F. W. & R. G. [6]Includes G. S. & Fla., N. O. & N. E.,

approximately $47,297,000, or 15.9 per cent of the total, as compared with $51,500,000 in 1933 and $67,500,000 in 1932, and miscellaneous supplies, consisting chiefly of storehouse stock, were approximately $181,455,000, or 61 per cent of the total, as compared with $180,500,000 in 1933 and $170,200,000 in 1932. Unsold scrap iron amounted to approximately $11,898,000, or 4 per cent of the total, as compared with $10,850,000 in 1933 and $12,900,000 in 1932. The book values of all principal classes of the total inventories at the close of 1934 were larger than the corresponding inventories in 1933, with the exception of cross ties.

Increases General

The capital tied up in materials and supplies since the beginning of 1935 was larger on 74 of 100 railroads and smaller on 26 railroads than at the beginning of 1934, the total increases amounting to $15,272,000, as compared with total reductions of $10,360,000. In almost every instance, however, the variations up or down from the corresponding inventories in the previous years were much smaller than the corresponding variations in previous years. There was a reduction of $2,588,202, or 8 per cent, in the total inventory of the New York Central lines, and a reduction of $1,126,858, or 48.4 per cent, reported on the St. Louis Southwestern lines, contrasted with increases amounting to $711,350, or 4.2 per cent, on the A. T. & S. F.; $761,482, or 9.8 per cent, on the C. B. & Q.; $458,233, or 5.2 per cent, on the C. M. St. P. & P.; $814,959, or 13.2 per cent, on the G. N.; $538,856, or 49.5 per cent, on the M-K-T.; $1,319,131, or 15.2 per cent, on the M. P. lines; $925,198, or 16.1 per cent, on the N. Y. H. & H.; $429,922, or 10.7 per cent, on the St. L.-S. F. lines; $1,111,865, or 39.5 per cent, on the S. A. L.; $889,242, or 9.4 per cent, on the S. P.-Pac. System; and $715,854, or 4.8 per cent, on the U. P. system.

Further details relating to the inventories and also the consumption of materials in 1934 are contained in Tables II, III and IV; Table II giving the amounts of fuel, rail, cross ties and miscellaneous materials and scrap, Table III giving the total inventories of roads for which classified figures are not available, and Table IV reporting quantities of materials on hand at the end of 1934 on representative railroads for which reports are available. Corresponding figures for the previous year were published in the *Railway Age* of April 7, 1934.

The total inventories in Tables II and III correspond to the general balance sheet account 716—materials and supplies, as contained in the carriers' annual reports of incomes and assets to stockholders and regulatory bodies, and are thus official, while the subdivisions of the inventory and also the consumption figures were compiled from special reports received by the *Railway Age* from the same sources certifying to the annual inventories. The statistics expressing inventories in terms of days' or months' supply of stock were compiled by dividing the reported consumption by the number of days or months in a year to obtain the theoretical average consumption per month and dividing it into the reported inventory.

While the method of reporting annual inventories is governed by rules prescribed by the I.C.C., complete uniformity is prevented by differences in the way rules are interpreted by different roads, particularly in accounting for fuel on hand, unapplied materials in the custody of users and also because of different values placed by different roads upon second-hand material, retired equipment and scrap, and the practice of handling new materials received but not paid for. To secure the greatest possible uniformity, the inventory figures were gathered from each road to include, unless otherwise noted, all new, secondhand, shop-made and otherwise usable material, machinery and equipment available and unapplied, including ties at treating plants, line stock, wooden stock and supplies for A.F.E. projects and new construction; also materials received but not paid for, while materials reported as used are considered to include the book value of all material issued to closed accounts for construction as well as maintenance. The figures are published as reported, except for consolidations which were made to conform to those recognized by the railroads in reporting to the I.C.C.

Ratio to Expenses Improved

Inventory studies have led to the adoption of various measures of comparing the values on different roads, the most common of which are the book values of inventories per mile of road, the ratio to operating expenses and the rate of turnover. The *Railway Age* has expressed total inventories on the basis of their relation to operating expenses since its detailed surveys of inventories were begun in 1926. While this index of inventory is not ideal, it can be developed for all roads from official figures and has other advantages which encourage its continued use.

Table III—Materials and Supplies Not in Table II

	Total On Hand Dec. 31	Decrease from Prev. Yr.	Per Cent Red.	Stock Op. Exp. 1934	Per Cent Op. Exp. 1933
Atlanta & West Point	$290,972	$28,339	8.8	22.0	25.4
Western Rwy. of Alabama	289,334	27,644	8.7		
Bessemer & Lake Erie	638,206	+27,931	+4.6	9.4	12.7
Burlington-Rock Island	689,707	32,374	4.5	75.0	8.9
Chesapeake & Ohio	4,076,644	134,525	3.2	6.7	7.3
Denver & Salt Lake	413,608	+168,059	+6.9	50.5	27.5
Duluth, Winnipeg & Pacific	277,258	+18,654	+7.2	27.0	29.5
Fort Worth & Rio Grande[1]	1,150	+295	+34.5		
Georgia	441,144	+3,827	+0.9	16.7	17.3
Gulf & Ship Island[2]	38,289	+12,502	+48.7	2.6	2.8
International-Great Northern[3]	1,668,219	+113,203	+7.3	16.5	17.5
Midland Valley	120,772	+19,667	+19.5	16.4	13.5
Minneapolis & St. Louis	646,124	53,261	7.6	9.6	10.3
New York, Chicago & St. L.	1,370,897	256,257	15.8	6.1	7.9
New York, Ontario & West.	1,037,590	+222,659	+27.4	14.7	11.7
Pittsburgh & Lake Erie[4]	2,093,601	313,947	13.0	16.3	
Pittsburgh & West Virginia	198,684	103,705	34.2	9.8	17.6
Staten Island Rapid Transit[5]	114,420	+22,432	+24.4	7.9	
Tennessee Central	203,311	6,334	3.1	13.1	14.6
Texas & Pacific	2,828,618	+57,697	+2.1	18.7	20.0
Texas-Mexican	79,662	+14,532	+22.1	8.0	9.8
Toledo, Peoria & Western	175,681	+19,112	+12.2	13.1	12.4
Wheeling & Lake Erie	955,881	+217,884	+29.4	11.2	9.2
Yazoo & Mississippi Valley[2]	499,182	+12,303	+2.5	7.6	10.7

[1] Incl. in St. L.-S. F. figures in Table II.
[2] Incl. in I. C. figures in Table II.
[3] Incl. in M. P. figures in Table II.
[4] Incl. in N. Y. C. figures in Table II.
[5] Incl. in B. & O. figures in Table II.

The tables show the ratio of gross inventories to operating expenses was lower than in the previous year on 74 of 93 railroads and higher on 19, while there were 15 railroads whose inventories on January 1, 1935, were lower than the weighted average for all the railroads. Disregarding whether the smaller inventories by this measure are or are not explained by the practice of relieving inventories of material before the material is used, as well as by special operating and purchasing conditions, the ratio was 6.2 on the C. & E. I., 5.6 on the C. St. P. M. & O., 5.1 on the C. G. W., 8.9 on the C. R. I. & P., 5.8 on the D. L. & W., 6.3 on the Erie, 9.6 on the G. T. W., 9.5 on the L. V., 9.6 on the M. & O., 9.7 on the Penna., 6.1 on the P. M., 7.6 on the Sou. lines, and 9.1 on the S. P. & S.

To facilitate comparisons and afford a more complete picture of supply conditions on each road, the *Railway Age* has again subdivided the stock into classes which are handled by different forces or subject to different policies in stock control and has expressed the value in terms of the average rate of turnover. While the fuel

inventory indicated that few roads operated on less than a week's supply during 1934, only 28 roads reported more than a month's supply, and the total inventory on December 31, 1934, represented a 34 days' supply, as compared with a 37 days' supply in 1933 and a 40 days' supply in 1932. The large stock of some roads is the result of storing fuel oil.

Counting relay rail, as well as new rail, inventories on December 31, 1934, measured by the consumption in the previous 12 months, ranged from one month's supply to more than a year's supply in some cases, while the aggregate inventory was equivalent on this basis to a 13 months' supply, as compared with 14.2 months' supply in 1933 and 18.1 months' supply at the close of 1932. The book value of stored rail amounted to $2,923,000 on the A. T. & S. F., $1,326,000 on the B. & O., $1,486,000 on the C. & N. W., $1,400,000 on the C. M. St. P. & P., $1,238,000 on the I. C., $1,123,000 on the L. & N., $2,468,000 on the N. Y. C. lines, $1,434,000 on the N. Y. N. H. & H., $1,733,000 on the Penna., $1,774,000 on the S. P.-Pac. Co., and $2,569,000 on the U. P. lines. While these stocks appear to be large, and in many cases have been increased somewhat by the purchase of new rail, they include much second-hand rail and would be depleted quickly with any consumption of track work comparable to that prior to 1929.

It is usual to carry sufficient cross ties for one year's requirements in order to obtain proper seasoning. The report for December 31, 1934, however, while showing some roads with large tie stocks on the basis of the consumption during 1934, indicate an unusual number of roads with stocks sufficient to last only a few months at the rate of consumption last year. Not only is the total stock smaller than has heretofore been recorded, but the inventory of 96 roads, representing 11 months' stocks, is a reduction in the supply of stock from a 13.4 months' stock in 1933 and 14.8 months' stock in 1933 and 14.8 months' at the end of 1932.

Stocks of miscellaneous materials, consisting chiefly of supplies handled by stores departments, increased in book value on 39 railroads but were reduced on 58 railroads, and the total supply on all railroads at the end of 1934 represented a 4.9 months' stock on the basis of the consumption during 1934, which is contrasted with a 5.7 months' stock in 1933, 5.5 months' in 1932, 4.4 months' in 1931, 3.8 months' in 1930, and a 3.9 months' stock in 1929.

An effort has again been made to report railway scrap and salvage value of retired equipment separately from other materials and prevent the inclusion of these values in stores stock from producing misleading comparisons and also because they comprise materials which, while frequently reconverted into usable materials, are not materials immediately usable. There is less uniformity in accounting for scrap than for other materials and the reports from different railroads are, therefore, less comparable. Figures for December 31, 1934, however, show an increase in this stock, which was to have been expected in view of the increased amount of car dismantling undertaken during the year and the higher scrap prices. The inventory for 74 roads amounted to $9,657,000 on December 31, 1934, as compared with $9,007,000 for the same roads on December 31, 1933, and show increases in the scrap account on the majority of the roads.

In view of the increased prices paid for materials in 1934, it is to be supposed that the increases in stock balances, where they occurred, reflected such increases in costs. That prices did not account for the entire increase, however, is shown by statistics of quantities, 52 roads reporting 3,798,684 tons of fuel on hand on December 31, 1934, as compared with 3,613,723 tons on December 31, 1933; 55 roads reporting 657,201 tons of new and relay rail in stock as compared with 599,678 tons in the previous year; 54 roads reporting 19,499,531 ties as compared with 17,553,125 ties in 1933; and 35 roads reporting 280,612 tons of scrap as compared with 240,456 tons in 1933. Thus, increases that occurred in stock balances are regarded as the principal result of the large increase in the volume of repair work performed in 1934 as compared with the previous year.

Table IV—Approximate Quantities of Material in Stock, December 31, 1934

	Loco-Fuel (Tons)	Rail—New & S. H. (Tons)	Cross Ties (Number)	Scrap (Tons)
Akron, Canton & Youngstown	922[1]	72[1]	15,890	645[1]
Alton	15,296	16,969	167,763	
A. T. & S. F. Lines	844,161	130,732	3,817,111	
Atlanta, Birm. & Coast	5,091	741	36,854	
Baltimore & Ohio	121,561	45,934		
Bangor & Aroostook	21,681[1]	3,762[1]	170,584	
Boston & Albany	24,648	7,668	193,806	5,695
Boston & Maine	48,956	27,070[1]	848,718	5,486
Butte, Anaconda & Pacific	46	189	34,421	831
Cambria & Indiana	364	139	312	357
Central of Georgia	22,291	8,610	284,965	
Central of New Jersey	42,167	4,986[1]	179,937	13,376[1]
Chicago & Eastern Illinois	9,316	2,473	160,905	1,523
Chicago & Illinois Midland	956	1,010[1]	19,049	792
Chicago & North Western	151,050			
Chicago Great Western	11,112	2,929[1]	2,815	12,472
Chicago, St. P., Minn. & O.	15,576	248[1]		2,318
Clinchfield	2,718	3,951	103,601	10,390
Colorado & Southern	12,804	914[1]	28,059	4,039
Columbus & Greenville	560	263	1,324	134
Del., Lack. & Western	50,326	13,320	140,977	9,905
Denver & Rio Grande West.	22,671	18,311	293,114	2,874
Detroit & Mackinac	2,186	362	24,650	401
Detroit & Toledo Shore Line	832	471[1]	22,795	186[1]
Detroit, Toledo & Ironton	297	2,654	101,682	426
Duluth, Missabe & Northern	69,521	2,384	134,936	1,972
Duluth, S. S. & Atlantic	2,150	1,351	14,151	
Elgin, Joliet & Eastern	11,397	2,255	48,616	4,241
Erie System	72,865	16,725[1]	796,500	40,429[1]
Florida East Coast	122,654[2]	4,063[1]	121,643	7,849
Fort Smith & Western	45			
Fort Worth & Denver City	32,530	857[1]	77,240	3,956
Georgia & Florida	1,280	2,151	21,258	3,907
Grand Trunk Western	29,431	12,650[1]	42,717	11,688
Great Northern	246,581 213,584[2]			
Green Bay & Western	1,569	2,806[1]	98,331	
Gulf Coast Lines	302,291[2]	6,894[1]	151,568	
Gulf, Mobile & Northern	2,002	3,143[1]	100,735	
Illinois Central System	110,279	50,050	1,422,032	
Illinois Terminal	794	695[1]	64,449	292[1]
Lake Superior & Ishpeming	15,980	495	22,448	639
Lehigh & New England	12,508[1]	3,112[1]	20,431	769[1]
Lehigh Valley	41,678	6,040	278,534	7,531
Louisiana & Arkansas	169,042[2]	1,732[1]	392,041	498[1]
Louisiana, Arkansas & Texas	35,655[2]	1,275[1]	64,819	348[1]
Louisville & Nashville	126,026	52,156	1,726,911	
Maine Central	8,999	6,392[1]	160,848	1,908[1]
Minn., St. P. & S. S. Marie	34,401	7,367[1]	496,701	
Missouri & North Arkansas	399	420	7,427	
Mobile & Ohio	14,673	5,615	15,037	8,040
Monongahela	490	809	4,271	51
Montour	376	322[1]	110	647[1]
Nevada Northern	948	163	29,180	
New York, N. H. & H.	81,283	43,533	456,400	6,309
Norfolk Southern	5,400	3,547	46,447	
Northern Pacific	133,317	20,316[1]	1,119,909	
Peoria & Pekin Union	1,644	967[1]	13,267	141
Pere Marquette	37,721	3,798	139,222	
Pittsburg & Shawmut	601	207	3,234	565
Pittsburg, Shawmut & Nrthrn.	1,401			
Reading	34,498			
Richmond, Fred. & Potomac	15,838	1,031	58,726	
St. Louis Southwestern	377,006[2]	1,275,786[3]	92,587	
Seaboard Air Line	284,148	37,340[1]	845,374	20,570
Southern System	156,870	21,229	1,022,413	48,340
Spokane-International	835	1,141	1,300	
Spokane, Portland & Seattle	79,065[2]	3,753[1]	27,883	
Terminal R. R. Ass'n of St. L.	4,237	1,728	10,980	3,659
Texas & New Orleans	234,359	32,991[1]	833,133	
Union Pacific System	293,902	96,072[1]	1,797,018	37,273
Utah	270	1,159	18,227	550
Virginian	6,624	3,747	268,176	
Western Maryland	34,334	1,513[1]	334,702	3,036[4]
Western Pacific	29,632	8,902[1]	149,999	20,633
Wichita Falls & Southern	1,625[2]	496[1]	11,304	82
Wichita Valley	476	109[1]	39,636	29
Comparative totals:				
Dec. 31, 1934	3,798,684	657,201	19,449,531	280,612
Dec. 31, 1933	3,613,723	599,678	17,553,125	240,456

[1] G.t.
[2] Bbl.
[3] Ft.
Note: Data missing where blank spaces occur in table.

Pennsylvania Builds Tunnel at

Shield-driven section, 2,085 ft. long, iron segments—Successfully

Looking East Through a Section of the Cast Iron-Lined Tunnel Toward the Heading and Shield—This Shows How Close the Work of Completing the Tunnel Was Kept Behind the Shield

IN connection with the extensive improvements which the Pennsylvania has been making at Baltimore, Md., in conjunction with the electrification of its line between New York and Washington, D. C., this road has recently completed a double-track tunnel within the city of Baltimore, 3,403 ft. long, which is the largest shield tunnel ever driven in mobile ground. This tunnel, semi-circular in section and, for the shield-driven part of its length lined with cast iron segments, is of special interest both because of its design and because of the methods used in its construction. It is also of interest because of the speed with which the work was carried out and the success with which it was handled in spite of the precautions incident to the preservation of an old brick tunnel which had to be retained in constant service directly alongside.

New Tunnel Supplements Old Tunnel

The new tunnel is located in the east side of the city, directly alongside the old 3,403-ft. double-track Union tunnel of the road, which afforded the only access of the road into Baltimore from the North, and carried all of its passenger and freight traffic moving north and south along the eastern seaboard. The old tunnel, which was built in 1873 with a five-ring brick arch and sidewalls, was not only too small in section to provide clearances for double-track electrified operation, but was in need of considerable repair. Furthermore, being on a grade of 1.2 per cent eastward, the old tunnel was one of the principal bottlenecks in eastward train movements, which made it desirable that the road have at least a three-track system at this point. These considerations brought about the construction of the new double-track tunnel, with possible future single-track electrified operation through the old tunnel.

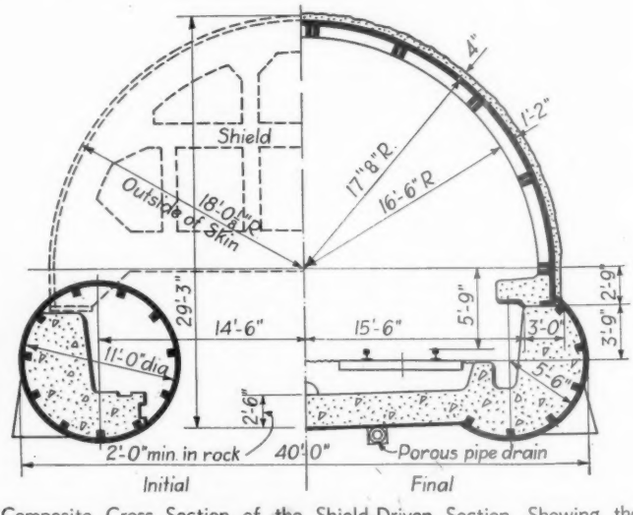
The old tunnel lies longitudinally beneath Hoffman street, with its east portal at Bond street and its west portal at Greenmount avenue. The new tunnel, with portals at the same points, was constructed 51 ft. to the south. This required the purchase of a strip of property along the south side of Hoffman street and the demolition of 100 or more dwellings and one-story buildings.

This location of the new tunnel was decided upon primarily because of the existence of a large cemetery immediately north of the old tunnel, and the further fact that the more southerly alinement greatly simplified the track and operating arrangements just west of the tunnel in Union yard, which embraces the passenger station area. In either location, the railroad would have been confronted with the problem of protecting the old tunnel thoroughly against ground movement while constructing the new one. It was this problem which led to the decision to drive the new tunnel by means of a shield, and in conjunction therewith, to use a cast iron lining which develops full strength immediately upon erection, and also to adopt a number of other special features of construction to prevent disturbing the old tunnel.

Two Methods of Construction Employed

The new tunnel, which is semi-circular in section above a point 6½ ft. above the base of rail, was built in three sections; a cut-and-cover section 946 ft. long at the west end, provided with a concrete arch; the tunnel itself, a shield-driven section 2,085 ft. long, lined with cast iron; and another cut-and-cover section at the east end, 295 ft. long, with a concrete arch. All three sections have the same inside cross section, with a clear width of 33 ft. at the lowest point of the arch and a clear height of 22 ft. 3 in. above top of rail.

The cut-and-cover method of construction was employed at the ends of the tunnel because, at the west end, the cut was fully one-third rock and because of the relatively shallow cover, but the shield method of construction was considered safer for the main portion of the tunnel, where the overburden ranged from 20 to 30 ft. in depth. The material penetrated consisted generally of glacial drift overlying hard gneiss, but separated therefrom by a layer of decomposed gneiss. Wash borings and open pit explorations disclosed the usual



Composite Cross Section of the Shield-Driven Section, Showing the Construction Stage on the Left and Completed Lining on the Right

* A description of the general improvements made by the Pennsylvania at Baltimore will appear in a subsequent issue.

Large Double-Track Baltimore

in mobile ground, is lined with cast overcomes special problems*

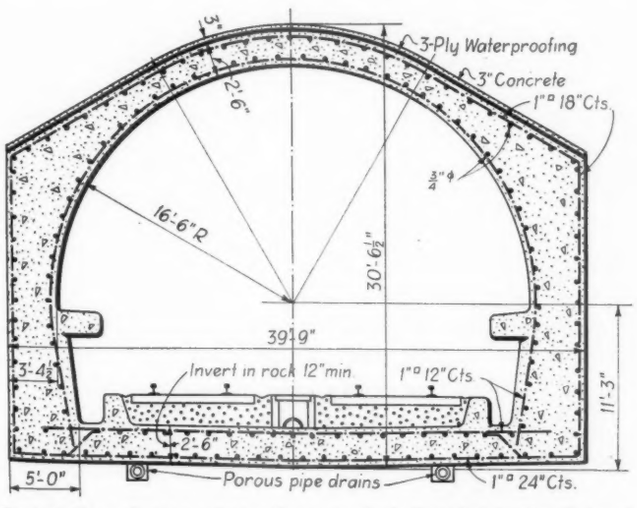
irregularities in glacial formations, consisting of sand, gravel, clay and mud. In the west half of the tunnel rock was encountered to various depths, but in the driven portion never more than half way up the face.

There was no regular water plane, water being found at various levels above and below the crown of the arch. At some points the ground was entirely dry. Drainage to below subgrade was, however, desirable and was obtained in a satisfactory manner by means of the sidewall headings.

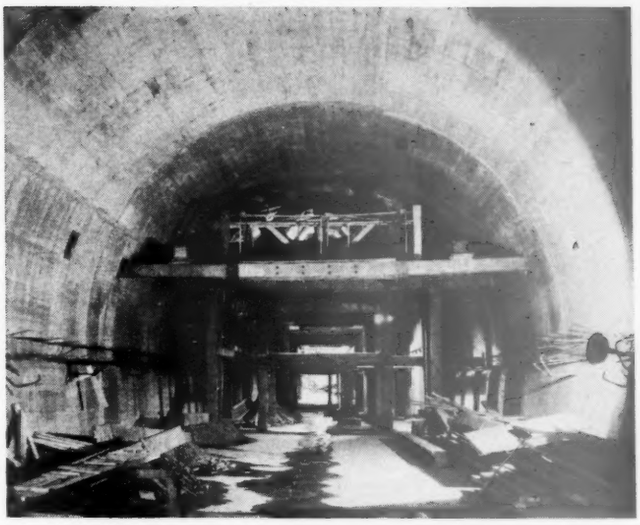
The construction of the shield-driven portion was started at and carried out from a shaft located at Valley street, approximately 1,000 ft. from the west portal, and at the east end of the west-end open cut section. Thus, the shield work was carried on continuously up grade from the west end. The construction shaft, which was located on the center line of the tunnel, was approximately 48 ft. square and 55 ft. deep, and contained a short length of concrete arch section which was used as an abutment during the shoving of the shield through the side of the shaft.

Essentially, the shield section of the tunnel was constructed as follows. First, two side drifts were put through at the sides of the main tunnel, in which a part of the concrete invert slab, and the side walls were constructed to a height of 5 ft. 10 in. These side walls were utilized to carry the main tunnel shield and to support the completed cast iron lining.

The work of driving the main tunnel followed approximately 500 ft. behind the advancing headings in the side wall drifts. Specifications called for an interval of at least 30 days, (actually this was more often 40 days) for the side walls to develop sufficient strength to carry the roof shield. As the shield was pushed forward and the face was breasted down, the cast iron segments were erected. Through a simple but effective method of mucking and muck disposal, the pouring of the concrete invert was always kept within approximately 60 ft. of the main heading. This provided lateral stability for the side walls at the earliest possible time.



Typical Cross Section of the Concrete Arch Provided in the Cut-and-Cover Section at Each End of the Shield-Driven Section



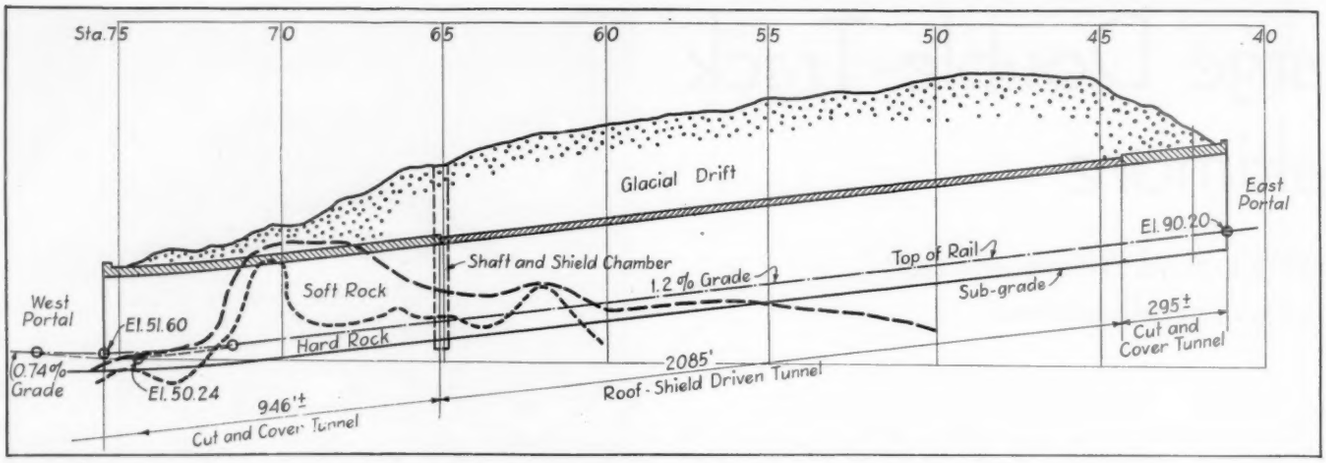
Within the Concrete Arch of the East End Cut-and-Cover Section, Showing Some of the Cut Bracing Still in Place and the Arch Form Directly Above

Wall Drifts Were Shield-Driven

The side wall drifts, which were 11 ft. in diameter, were put through with full circle shields and were completely lined with segmental liner plates, $\frac{3}{16}$ in. thick, with 2-in. flanges. These small shields, of 11 ft. 4 in. outside diameter, were constructed of cast iron segments bolted together and provided with a one-inch steel tail plate. They were moved forward by means of eight 6-in., 62-ton, double-acting hydraulic jacks, pushing against the steel lining. In order to distribute the thrust of the jacks over the full circumference of the lining, spreader bars, with bearing completely around the circumference of the lining, were attached to the ram heads.

For approximately 500 ft. from the construction shaft, both wall drifts passed through hard gneiss overlaid with a decomposed gneiss and glacial drift. Beyond this point a full face of glacial drift was encountered which continued to the end of the shield-driven section. Except where occasionally the face consisted entirely of stiff clay, breasting timbers were used to support it, these being braced through the small shields against "walking sticks" or cross timbers held on the lining while the shields were being shoved ahead. The shields were designed for excavating ahead 16 in., the width of one ring, at a time, but actually two rings were excavated for, under the protection of steel poling plates resting on the top of the cutting edge. In loose sand, the miners often had to work rapidly in driving these plates ahead while manipulating the top breasting.

Until the completion of the west end cut-and-cover tunnel, all muck from the side drifts was loaded by hand into small narrow-gage side dump cars, and was hauled back through the drifts to the construction shaft by storage battery motors. At the shaft, the cars were raised by an electrically-operated elevator, one at a time, to an elevated platform above the ground level. Here, they were dumped into a large wooden hopper, which discharged over chutes directly into trucks which carried the muck to points of disposal. After completion of the cut-and-cover section at the west end, all muck was taken



Sketch Profile of the New Baltimore Tunnel, Showing the Character of the Material Penetrated

out through it in railroad cars loaded in the tunnel from the small cars by means of a gantry crane.

Wall Concrete Pumped Into Place

The concrete in the side wall headings was poured in two stages; first, the footings, which formed a part of the tunnel invert, and then the wall proper. The invert section was poured as close as convenient back of the advancing face, usually about 50 ft., and the wall section pouring followed about 50 ft. behind the completion of the invert. Each of the pourings, over a length of 20 ft., involved the placing of approximately 20 cu. yd. of concrete.

The concrete used in the walls and footings was pumped directly to the point of pouring from the ground surface, which left the headings free for the disposal of excavation and for handling forms and reinforcing steel. The concrete, which was delivered to the pump from a central mixing plant in four- or five-yard transit mixers, was pumped down 10-in. bore holes into the drifts through a 6-in. pipe, directly to the points of pouring. These holes had been sunk at intervals of about 175 ft., and were of considerable use in the alinement of the headings.

Steel forms were used in constructing the inner faces of the footings and the side walls, while at the back the concrete was poured against the drift liner plates. As a precautionary measure, in view of the circular shape of the headings, and, therefore, of the outside faces of the walls, concrete heels or footings were provided at intervals along the lower outside corner of the walls. This was done by removing plates from alternate rings of the lining just prior to concreting, and excavating to permit the heel formation.

All of the segments of the side drift lining used as forms were, of course, left in place, while the remaining segments were removed as the main tunnel shield advanced, and were re-used in the headings. With the work carefully co-ordinated in each of the drifts, these advanced usually from 4 to 7 ft. a day when in rock, and as much as 16 ft. a day when in soft ground.

Starting One of the Sidewall Headings Through at the Valley Street Shaft, Showing the First Few Lining Plates in Place Back of the Shield

Main Shield 36 Ft. 0¼ In. in Diameter

The cast iron lining employed in the shield-driven section of the tunnel is made up of alternate rings of segments arranged to break joint longitudinally, and employs segments of five different shapes. The segments are 30 in. wide, having a 1½-in. thick skin and 14-in. wide flanges. To insure accurate field assembly for both watertightness and shape, all contact faces of the segments were machined. The segments were bolted with 1¾-in. bolts, the nuts of which were first run up with air wrenches and later tightened with 48-in. hand wrenches. The segments were provided with calking grooves one-quarter inch wide and one inch deep at all joints, which were calked with lead, using pneumatic calking tools, shortly after the segments were erected.

The shield used in driving the main tunnel section, which had an outside diameter of 36 ft. 0¼ in. and a height of 20 ft. 9 in., was not of unusual design, but was the largest that has ever been used in this country as regards both span and height. The shield was erected in the shaft at Valley street, and was designed to travel along upon the tops of the concrete walls already built in the headings. Movement of the shield was by means of heavy slide plates bearing upon steel rails embedded, base up, in the tops of the walls. It was found important that these rails have accurate elevation in order to provide uniform bearing for the shield base.

Details of Main Shield Work

The main shield was of structural steel with a cast-steel cutting edge. It was provided with upper and lower working levels and with eight sliding tables, and pulled along with it as it advanced an operating platform extending across the tunnel between side walls. The shield

was moved forward by means of twenty 200-ton hydraulic jacks operating under a maximum pressure of 5,000 lb. per sq. in. These jacks, bearing against the last cast iron ring, effected a 30-in. forward movement of the shield in each shove.

In soft material, the face had to be breasted by means of 2-in. by 10-in. boards placed horizontally and supported by 8-in. by 8-in. soldiers, held in place by the hydraulic sliding platforms of the shield. Where very loose material was encountered, additional light boards, generally of ⅞-in. material, were placed radially around the greater part of the periphery of the face to support the area, approximately two feet wide, to be occupied later by the cutting edge upon the completion of a shove. The inner ends of these radial boards were wedged against the two-inch breasting, and spaces between and ahead of them were closely packed with hay or sacking.

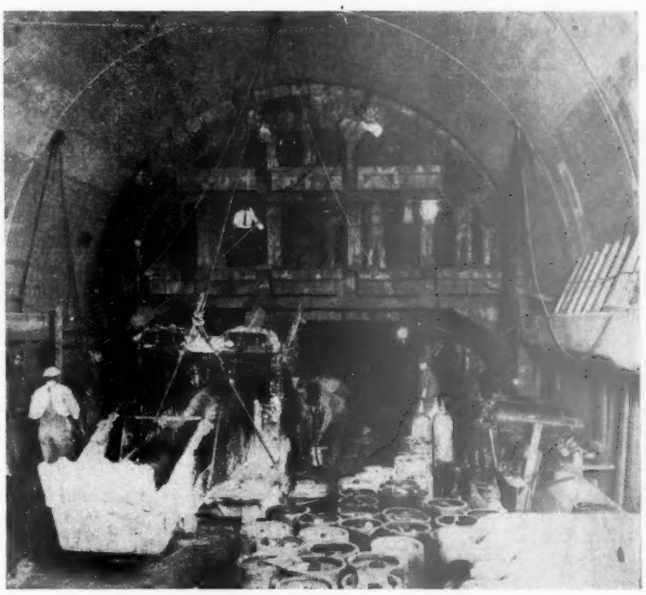
At first, the progress of the work was necessarily slow, but later as the men became accustomed to the routine, it became as much as 15 ft. a day in good material. During the two months from July 7 to September 7, 1934, 824 ft. of tunnel was built complete.

Upon the completion of each shove, the last preceding ring was grouted through 3-in. grouting holes in each segment, starting at the bottom. To prevent the escape of the grout, sacking was driven between the cast iron ring and the tail of the shield and was held in place by circle boards with the shield jacks. Cement grout, ejected by an ordinary grouting machine, was used, although it had been hoped originally to be able to pump a fine concrete backfill. The idea of using a concrete backfill was given up because of the difficulty of obtaining a suitable concrete pump sufficiently small to be operated effectively within the heading. Special care was taken in grouting the lining on the north side, where the new tunnel is only approximately 14 ft. from the brickwork of the old tunnel. In the lower segments, a specially devised nozzle was used, which directed the grout in a longitudinal direction close to the lining, rather than radially. After the grouting was completed, and while the face material was being broken down progressively from the top, the next ring of cast iron segments was erected, the individual segments being placed by the usual hydraulic erector.

Disposal of Muck

The excavating operations in the tunnel face were carried out usually with a force of eight miners, eight helpers and five shield muckers. All material other than rock was broken down by hand, the rock being blasted with 40 per cent Du Pont dynamite, with delayed exploders. Because of the close proximity of the old tunnel, all shots were relatively light and were covered with heavy mats.

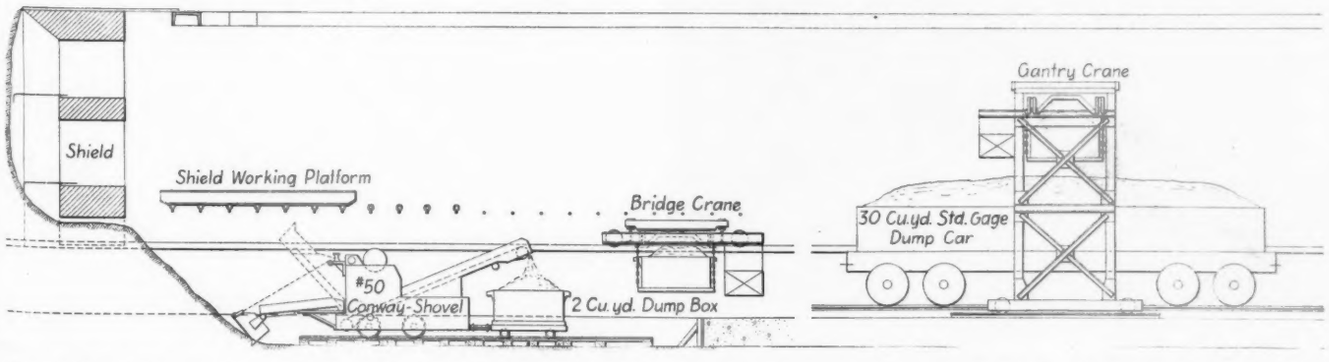
The mucking machine was operated directly behind



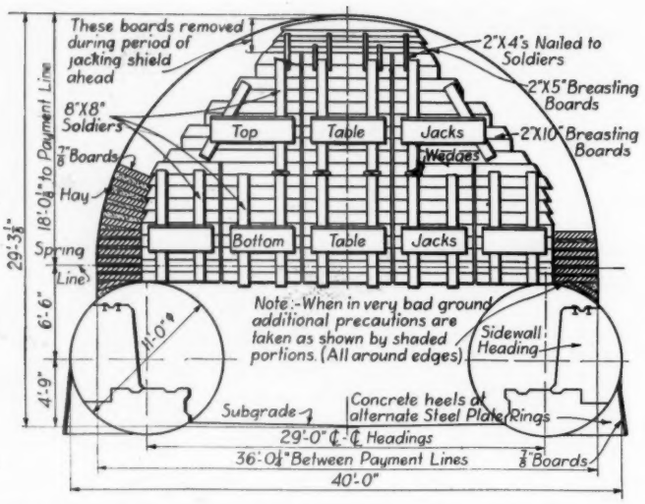
The Face of the Shield (Being Dismantled) As It Holed Through to the Concrete Arch in the Cut-and-Cover Section at the East End—The Conway Mucker is Shown in the Foreground

the shield at final subgrade level, and all of the tunnel excavation, except that brought out of the side headings, was loaded by it into two-yard boxes. These were picked up by a gantry crane, the ends of which were supported on the tunnel side walls, and were set on narrow-gage flat cars on one or the other of two side-tracks. Prior to the completion of the cut-and-cover section of the tunnel at the west end, the loaded boxes were taken to the surface by one of the electric elevators in the shaft and the muck was disposed of by truck. Upon the completion of the west end cut-and-cover section, the loaded boxes were raised from the flat cars by a second gantry in the tunnel, and were dumped into standard gage air dump cars, which were hauled to the west portal by means of an electric locomotive and there turned over to the railroad for disposal. Toward the end of the work, when the side wall drifts had been holed through into the east end cut-and-cover section, the muck was moved out eastward through these headings and was dumped into motor trucks, thus avoiding interference with the construction of the concrete sidewalks and curbs and the laying of the final tracks.

As is evident from the foregoing description of the tunneling operations, the main tunnel work in the shield was carried out in cycles, the interval depending upon the time required to break down the face after each shove and set forward the face timbering as this always exceeded the time required for the erection of the lining



Sketch Showing Equipment and Method of Muck Excavation in the Main Tunnel—High Gantry Crane and 30-Yd. Car Used Only After West End Cut-and-Cover Section was Completed



Sketch of the Main Tunnel Heading as Breasted Up With Boards and Soldiers, Just Prior to Jacking the Shield Ahead

and grouting. Excavation to subgrade was always kept close to the shield operations, the mucking machine and the disposal cars having no difficulty in keeping up with the progress of the shield, even when this reached a maximum of 15 lineal feet a day.

The excavation within the tunnel, exclusive of that in the side headings, amounted to approximately 28 cu. yd. per lineal foot, so that during the period of maximum progress, as much as 420 cu. yd., place measurement, or approximately 600 cu. yd. loose measurement, were disposed of in 24 hours. The total displacement of the tunnel as a whole is 36 cu. yd. per lineal foot.

The completion of the mucking operations directly behind the shield made it possible also to keep the concrete invert close behind the removal of the earth "core" between the headings. As a matter of fact, the pouring of the invert was usually kept within 60 to 70 ft. of the shield. This reduced to a minimum the time during which the side walls, carrying the heavy and active loads of the shield and the newly erected iron lining, were deprived of lateral support. In spite of the fact that the core between the side walls, and the subgrade itself, at places consisted of mobile ground, there were no signs of flowing of either the core or the subgrade material, or of movement of the side walls.

All of the concrete for the invert, which is 2 ft. 6 in. thick, was delivered by pipe from a pump on the surface, in the same manner as that for the side walls.

Looking West Through the Cut-and-Cover Section at the West End, Showing the Bracing Used and the Character of Material Excavated in the Lower Levels—The Concrete Arch Form Can Be Seen Through the Bracing in the Background

Drainage during construction was provided automatically through the grade on which the tunnel was constructed. In the completed work, normal track drainage, or drainage of the ballast, is effected by means of a half section of 16-in. perforated cast iron pipe, treated with asphalt, laid in the center of the tunnel, on top of the invert. Water is drained from behind the side walls and the arch by four-inch cast iron pipes which extend through the lower part of the side walls at intervals of ten feet. Two lines of porous pipe laid lengthwise of the tunnel, beneath the invert in broken stone, insure drainage of the subgrade.

The hydraulic power pumps and air compressors used in the work were located above ground. The primary units of power equipment included a 28-gal.-per-min. motor-driven Watson-Stillman horizontal plunger pump, capable of operation at 10,000 lb. pressure; another pump of the same type, and capable of developing the same power, but of smaller capacity; a hydro-pneumatic accumulator which delivered the hydraulic pressure to the shield jacks; and three 810-cu.-ft. capacity Ingersoll-Rand air compressors for supplying air to the rock drills, grouting machines, air wrenches and other small tools. A complete machine shop on the surface was fully equipped to sharpen drill steels and to carry out machine and tool repairs.

Cut-and-Cover Work

While the shield-driven section of the tunnel was being put through, the cut-and-cover sections at the ends were being constructed. These sections, which were provided with a reinforced concrete arch of the same internal cross section as the driven tunnel, were constructed in much the same manner as subway construction, with certain modifications to meet local conditions.

In the west end section, the tunnel was built between lines of interlocked steel sheet piling driven to a secure footing in the rock. As excavation proceeded, horizontal lines of 10-in. by 12-in. wales were installed and were braced by horizontal steel and timber struts and diagonal members.

At the east end cut-and-cover section, where soft material was encountered to a point below subgrade, the sides of the open excavation were retained by 18-in. steel I-beams vertically, at intervals of 6 ft., and faced up with 3-in. and 4-in. plank set against the back sides of the inner flanges. The vertical beams were braced across the cut by 30-in. steel I-beams and, as excavation proceeded, by horizontal timbers and suitable diagonal braces at a lower level. All of the excavation in the upper levels of both end cuts was done with steam shovels and clamshell buckets, while the excavation at the lower levels was done entirely with shovels operating at subgrade, all excavation being removed in motor trucks.

The concrete lining of the cut-and-cover sections has a semi-circular interior section above spring lines, while the back faces of the side walls are carried up vertically above spring line, with a sloping surface to the top of the arch. This design was adopted not only with a view to the ground forces, but the possibility of future buildings over the right-of-way. At the west portal, over Greenmount avenue, for a distance of 72 ft., a steel and concrete box section carries the roadway over the tracks.

The side walls of the concrete tunnel have a minimum thickness of 3 ft. 4½ in., and the arch proper, a minimum thickness of 2 ft. 6 in. Both the walls and the arch are reinforced on their inner and outer faces. The invert in the concrete arch sections is similar to that constructed

in the cast iron-lined section, 2 ft. 6 in. thick, and continues the same systems of drainage used in that section.

The concrete used in the open cut sections was placed in three pours; first, in the invert and side wall footings, then in the side walls, and finally in the arch. The concrete was delivered in transit mixers and was chuted directly into place. Timber forms were used practically throughout, the arch form being mounted on wheels on the trench timbering. Backfilling of the arch for a depth of four or five feet was done largely by clamshell, but, above this level, the material was dumped from motor trucks.

Approximately 74,000 cu. yd. was excavated in the shield-driven section of the tunnel, of which about 9,500 cu. yd. was rock, while approximately 65,900 cu. yd. of earth and 25,370 cu. yd. of rock were removed in the two cut-and-cover sections. The concrete employed amounted to 33,613 cu. yd., and the cast iron tunnel lining, including bolts, weighed 9,754 tons.

The tunnel project was begun on July 17, 1933, by excavation of the west end cut. The side wall drifts were started on October 23, 1933, and holed through on July 23, 1934. The main shield was started on January 15, 1934, and holed through on September 7, 1934. Twelve days later, the shield was removed and the iron and concrete linings completed, and by September 27, only 20 days after holing through, the permanent tracks were laid and ballasted throughout, the electric catenaries were erected, and an inspection train was moved through the tunnel.

The work of building the new Union tunnel at Baltimore was carried out under the general administration of T. J. Skillman, chief engineer of the Pennsylvania, represented by W. B. Wood, engineer, Baltimore Improvements, with D. A. Leisher, resident engineer. James Forgie, consulting engineer, New York, was responsible for the design and method of execution, and for the direction of the construction. Both the shield and cut-and-cover sections were carried out under contract by the Arundel Corporation, Baltimore, of which J. V. Hogan is president and Charles W. Black, chief engineer. Harry Redwood was tunnel superintendent for the job.

Motor Carrier Bill Reported by Senate Committee

WASHINGTON, D. C.

THE Eastman program of transportation legislation was advanced one important step this week when the Senate committee on interstate commerce on April 8 voted a favorable report on S. 1629, the bill recommended by the co-ordinator to provide for regulation by the Interstate Commerce Commission of interstate bus and truck transportation, with numerous amendments consistent with the general purpose of the bill.

President Roosevelt is now expected to send to Congress at an early date his long-promised message on transportation legislation which has been counted on by advocates of the bill to bring about its consideration at this session of Congress. The action was not taken by the committee, however, until after a decision had been announced to postpone at least temporarily and possibly for this session the consideration of S. 1632, the water carrier bill, because of objections offered by the Senate committee on commerce.

Hearings before the Senate committee which had been proposed for this week on the bill to amend the law relating to railroad reorganizations have been postponed until after hearings on the utility holding company bill. A hearing on the latter bill before the House judiciary committee is now scheduled for April 15, the bus-truck bill is still before a sub-committee of the House committee on interstate commerce, and the water carrier bill is before the House merchant marine committee which has not yet indicated an intention to take it up. No decision has yet been reached by the Senate committee as to what it shall do about the Eastman bill proposing a reorganization of the Interstate Commerce Commission with divisions for different forms of transportation.

Motor Carrier Bill

The amendments to the motor carrier bill adopted by the Senate committee preserve the general plan of the Eastman bill, but include many detail changes urged by various interested organizations. Some of the exact language had not been settled at the time of the vote. One important change was to include the amendment recommended by the Interstate Commerce Commission authorizing it to establish reasonable requirements as to the qualifications and hours of service of employees engaged in motor vehicle transportation, including those employed by private carriers. Another was to eliminate the power to compel the establishment of through routes and joints rates between motor carriers and railroads, although the bill as reported provides for the permissive establishments of such routes and rates.

As amended by the committee, the bill would refer to the present interstate commerce act as Part I and the motor carrier act as Part II, instead of Part III, as proposed. The water carrier bill, if enacted, would be Part III. The proposed declaration of policy was amended to read: "It is hereby declared to be the policy of Congress to supervise and regulate transportation by motor carriers in such a manner as to recognize and preserve the inherent advantages of and foster sound economic conditions in such transportation and among such carriers in the public interest; promote adequate, economical, and efficient service by motor carrier and reasonable charges therefore without unjust discrimination, undue preference or advantage, or unfair or destructive competitive practices; improve the relations between and co-ordinated transportation by and regulation of motor carriers and other carriers; develop and preserve a highway transportation system properly adapted to the needs of the commerce of the United States and of the national defense; and co-operate with the several states and the duly authorized officials thereof in the administration and enforcement of this part."

Extent of Regulation Proposed

The bill provides for regulation by the commission with respect to the rates, accounts, and safety of operation and equipment of motor carriers in interstate commerce, making distinctions between common, contract, and private carriers and exemptions as to purely private occasional or irregular transportation. The provision regarding the issuance of certificates of convenience and necessity has been amended to authorize additional service or equipment not contemplated in the original certificate and the "grandfather clause" has been changed to allow operators not in business in 1934 but in business at the time of the passage of the act 120 days in which to make application.

Railroads may apply to the Interstate Commerce Com-

mission for authority to acquire motor carriers but such authority shall not be granted by the commission unless it finds that such acquisition will be in the public interest and will not unduly restrain competition. Provisions are made for mergers of motor carriers but the restrictions do not apply where less than 20 vehicles are involved unless a railroad is the applicant. The merger provisions apply to contract carriers as well as to common carriers. The only provision for compulsory through routes and joint rates is that applying between bus services, but the bill would make it the duty of bus operators to establish reasonable through routes and permit truck operators to establish through routes with other carriers, including railroads.

Vote for Favorable Report Nearly Unanimous

A favorable report on the bill was ordered by a nearly unanimous vote of the committee after four executive sessions at which various proposed amendments were considered. Co-ordinator Eastman worked with the committee in considering the changes from his original bill. He has also been in conference with the legislative committee of the American Trucking Associations, Inc., on details of the bill. Ted V. Rodgers, president of the association, last week sent letters to all members of the House and Senate committees considering the bill stating that the industry whole-heartedly favored the principles of the program proposed by Mr. Eastman and that putting them into effect "would benefit greatly, not only all divisions of transportation but shippers and the general public as well," although he referred to several amendments as needed. With the expectation that Mr. Eastman would present to the committees certain amendments which had been discussed Mr. Rodgers said: "We are convinced that if this program is adopted, the co-operation of the industry with the regulation will produce amazing results in the correction of present undesirable conditions in transportation."

Water Transportation

The bill to provide for federal regulation of water transportation, S. 1632, has been set aside by an agreement reached between Chairman Wheeler of the committee on interstate commerce, that had charge of the bill, and Chairman Copeland of the committee on commerce, which has been objecting to the present consideration of the bill because of its provisions transferring the regulatory jurisdiction of the Shipping Board Bureau of the Department of Commerce to the Interstate Commerce Commission. The commerce committee had previously protested against the assignment of the bill to the interstate commerce committee because it has customarily handled merchant marine legislation.

On April 3 Senator Copeland made public a letter he had written to Senator Wheeler asking that the latter's committee do nothing about the bill until the commerce committee had had a chance to formulate its proposed ship subsidy bill and to determine whether the regulation of rates should be in the I. C. C. or whether the entire matter of subsidies should also be passed over to that body. Senator Copeland also said that the bill was unsatisfactory to his committee in a number of important particulars and asked for time to formulate its objections or to suggest amendments. Senator Wheeler agreed to comply with the request and later indicated his opinion that this would postpone the bill for the remainder of the session. The House committee on merchant marine, to which the bill was also referred, has made no plans for taking it up and is also trying to formulate a ship subsidy bill.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended March 30 totaled 617,485 cars, an increase of 9,705 cars as compared with the week before and of 7,295 cars as compared with the corresponding week of last year. This was also an increase of 119,129 cars as compared with the corresponding week of 1933. All commodity classifications except forest products and coke showed increases as compared with the preceding week, but only coal and forest products showed increases as compared with last year. The summary, as compiled by the Car Service Division of the Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ended Saturday, March 30

Districts	1935	1934	1933
Eastern	141,794	143,887	114,866
Allegheny	129,933	124,360	92,944
Pocahontas	47,903	48,134	32,091
Southern	98,913	95,869	80,417
Northwestern	66,339	67,480	57,613
Central Western	85,256	82,385	75,024
Southwestern	47,347	48,075	45,401
Total Western Districts	198,942	197,940	178,038
Total All Roads	617,485	610,190	498,356
Commodities			
Grain and Grain Products	26,984	27,523	34,327
Live Stock	11,023	13,544	14,870
Coal	140,862	140,071	89,120
Coke	5,710	7,867	3,767
Forest Products	24,407	23,781	17,273
Ore	4,131	4,199	2,661
Merchandise L.C.L.	161,504	166,170	159,575
Miscellaneous	242,864	227,035	176,763
March 30	617,485	610,190	498,356
March 23	607,780	610,036	479,959
March 16	597,432	627,549	453,637
March 9	587,270	614,120	441,361
March 2	604,642	605,717	481,208
Cumulative Total, 13 Weeks	7,510,681	7,565,168	6,249,295

The freight car surplus for the first half of March averaged 305,143 cars, a decrease of 14,960 cars as compared with the last half of February. The total included 187,391 box cars, 68,450 coal cars, 27,347 stock cars, and 7,960 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended March 30 totaled 43,019, as against 38,512 last year and 43,798 in the preceding week, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
March 30, 1935	43,019	23,420
March 23, 1935	43,798	23,753
March 16, 1935	43,358	23,872
March 31, 1934	38,512	25,061
Cumulative Totals for Canada:		
March 30, 1935	555,149	295,639
March 31, 1934	530,152	298,554
April 1, 1933	430,799	221,876

THE SOUTH AUSTRALIAN RAILWAYS for the year ended June 30, 1934, reported a net deficit of £840,711, an increase of £152,639 over the 1932-33 deficit of £688,072. Gross revenues for 1933-34 declined £173,900 as compared with the previous year while operating expenses increased £50,000 and interest and exchange charges dropped £71,200. Of the rise in operating expenses £36,200 was attributed to increased wages under Federal awards, while the drop in revenues was due in the main to a falling off of £182,079 in the revenue from wheat traffic.

Government Ownership in Theory and Practice*

Some comparisons between U. S. and countries where roads are publicly operated

By R. V. Fletcher

Vice-President and General Counsel, Association of American Railroads

I SHOULD like to make it clear that this topic is not of my selection and that I am delivering this utterance at the press request of the program committee, who considered it worthwhile to have, at this time, some discussion of this interesting question. Personally, I doubt very seriously if there is much sentiment, among thoughtful and substantial people, for government ownership and operation of the railroads. The principle is advocated by many very worthy and intelligent people, who are, however, more vocal than numerous. It finds its advocates among doctrinaires who can never get away from what they conceive to be the logical conclusion that a business affected with a public interest must be publicly owned and managed; among others who lean so far to the left that they would welcome the experiment as the first step toward the socialization of all industry; among others who are so infatuated or so saturated with government subsidies that they expect a wholesale reduction in rates at the expense of the taxpayers; among others, few in number, who hope to exchange unprofitable railroad securities for solvent government obligations; among others who see here an inviting field for the political spoilsman; and among others in our own ranks who have grown faint hearted in the struggle and are complaisant at the prospect of bureaucratic rule, if it will not disturb their slumbers. But all these comprise a very small minority of the American people, not yet prepared, as I hope and believe, to surrender their ideals of Democracy and emulate the example of those countries where Facism is the ruling creed.

In many of Mr. Eastman's public statements, there have been references to the question and these repeated, though usually incidental, discussions have served to keep the subject before the American people and to give it an aspect of importance as being something to be considered seriously as within the range of possibilities. In his most recent speech, delivered before the Chamber of Commerce of the State of New York on March 7 of this year, the Coordinator, after criticising rather severely the alleged reluctance of railroad management to accept certain of his recommendations, closed his address with a brief reference to government ownership as an alternative to the policies which he attributed to the railroads, saying, in effect, that he had long been strongly inclined in theory to the principle of public ownership and operation; that private ownership and operation under government regulation is a complicated, hybrid system, characterized by divided responsibility, but that the change had not as yet received such support in public opinion as to warrant the transformation. He dwells, however, upon the fact that if the government took over the roads, it could inaugurate a policy of spending money for the improvement of the roads, thereby assisting in the revival of industry.

58 Per Cent of World Mileage Privately Owned

I should like, however, to examine this question in the light of the experience in this and other countries with some brief consideration of what the change involves as affecting our economic and political situation. It is frequently said, and Mr. Eastman has called attention to the fact, that government ownership of railroads is not an untried experiment; that the greater part of the railroad mileage of the world is publicly owned and operated. Our investigation does not confirm this statement. I think it is approximately accurate to say that 42 per cent of the railway mileage of the world is publicly owned and 58 per cent privately owned. The percentage of publicly operated mileage is somewhat less, since some publicly owned railroads are leased to private companies for operation. In all, there are in the world 355,800 miles of state-owned roads; of this mileage, 52,000 is in Russia, 33,425 in Germany, 31,690 in India, 10,512 in Italy, about 12,000 in Japan, 12,450 in Poland and 13,151 in the Union of South Africa. In these countries will be found about 46 per cent of the publicly owned railways of the world. Of the 492,200 miles of privately owned railroads, 307,367 miles, or about five-eighths of the total, are in the free democracies of the United States, Great Britain and France, while, as we have seen, 46 per cent of the public owned properties lie in the despotisms of Russia, Germany and Italy; in countries where self-government is yet in its experimental stage, as in South Africa and Poland; in Imperial Japan; and in India, hardly to be accepted as a model of orderly government. I think it is quite significant that in those countries which we are accustomed to regard most highly for their adherence to the ideals of freedom and democracy, there is such a preponderance of privately owned railroads, while the contrary is true in those nations that have confessed their incompetence by yielding to the rule of tyrants.

When we are told, therefore, that we should look elsewhere for guidance in this important matter, our eyes at once fall upon the towering figures of Stalin, Hitler and Mussolini from whom we are advised to learn wisdom. I do not assert that these despots are responsible for the system of state ownership in the countries over which they exercise dominion. To a very large extent, government ownership antedated the rule of these usurpers. But it is fair to say that a condition of public sentiment which preferred ownership by the state rather than by private enterprise of the most important agencies of transportation, furnished a fertile field for the growth of tyranny. Those of us who still cling with passionate devotion to the freedom of the human spirit

* From an Address Before the Traffic Club of Chicago.

may well find in this circumstance material for sober reflection.

Let us see what we find when we look at the operating results on these state owned and operated railroads. In the sadly depressed year of 1933, the railroads of the United States had a net operating revenue of $846,085,-131; operating income (after paying taxes and deducting uncollectible revenue) of $595,231,408; net railway operating income (after making farther deductions for equipment and joint facility rents) of $474,212,304. This was a sorry showing, it is true, and represents a return of only 1.8 per cent upon the property investment of the carriers. The operating ratio was 72.6 per cent. The average revenue per ton per mile on freight traffic was .999, or practically one cent. This last mentioned figure is the best available measure of the level of freight rates, since it shows that in this country, taking all freight traffic into consideration, it costs on the average one cent to have a ton of freight moved one mile.

Some Results Abroad

Let us compare these figures, which I hope you will bear in mind, with the record of the state owned roads abroad. In 1933, the German government, through its operating company, operated 33,479 miles of railroad with an operating deficit of $32,394,000 and at an operating ratio of 104⅔. And yet its average rate per ton mile on all freight was 1,046 cents, a slightly higher rate than that paid in the United States. In Italy, for 10,038 miles of road operated by the state, the operating deficit for 1933 was 603,000,000 lire, and the operating ratio 119.17 per cent. In Belgium, a country of high traffic density, where 3,000 miles of road are operated by the state, the operating deficit, in 1933, was 168,502,-000 francs and the operating ratio was 106.87 per cent. In Denmark, a well-governed country, where 1,500 miles of railway are owned by the government, the operating deficit for 1933 was $3,540,699 and the operating ratio 114.37 per cent. This is in the face of the fact that the average rate per ton per mile is 3.06 cents, more than three times the average for the United States. In Norway, where 2,180 miles of railway are owned and operated by the state, in 1933 there was an operating deficit of $1,981,415 and an operating ratio of 111.5 per cent, although the rate per ton per mile was 2.43 cents, twice the average for the United States. To complete the Scandinavian saga, in Sweden where 4,283 miles of railroad are owned and operated by the state, there was net operating revenue of $3,445,036 (a deficit after interest of $4,621,000) and an operating ratio of 92.26 per cent. Here we find that the rate per ton per mile was 1.823 cents, eighty per cent above the average in the United States. In little Switzerland, there is a better showing. There, for 1933, the 1787 miles of state-owned railroad earned $13,442,751 above operating expenses, the operating ratio being 79.69. But it should be remembered that the average rate per ton per mile is 3½ cents, in comparison with one cent in this country. In the Republic of France, in round numbers, there are 26,000 miles of railroad, of which 19,000 are privately operated and 7,000 are operated by the government. Of the publicly operated mileage, 5,670 miles comprise the State Railway System, which in 1932 incurred an operating deficit of 348,039,088 francs and had an operating ratio of 118 per cent; 1435 miles constitute the Alsace and Lorraine System, which in 1932 incurred an operating deficit of 109,192,653 francs and had an operating ratio of 113 per cent. True it is that the privately operated railways of France have not been prosperous, but it is significant to note that for the years 1923 to 1932 the net deficit per mile per year on the state-operated roads was 60,161 francs and the same figure on the privately operated roads was 23,515 francs.

I am not trying to distort the facts in order to sustain a thesis. And I am, therefore, perfectly willing to explain that there are some publicly-operated roads which make a better showing. In Australia, where 27,108 miles of railways are operated by the state, in 1933 there was net operating revenue of $50,983,985 and an operating ratio of 72.43. However, the deficit after interest amounted to $17,543,124. In New Zealand, where 3,-315 miles are operated by the state, in 1933, there was an operating surplus of $4,139,172 and an operating ratio of 85.91. The deficit after payment of interest was $6,-716,311. In Poland, where 10,915 miles of road were in 1931 operated by the government, the net operating revenue for that year amounted to $12,368,307 and the operating ratio was 91.4 per cent. The average rate per ton per mile on all freight transported was lower than in the United States, being .687 cents. The advocates of government ownership may get what consolation they can from Poland, though here the operating ratio is nearly 20 per cent higher than in the United States.

In British India, where more than 31,700 miles of railway are operated by the state, the net operating revenue for 1933 amounted to $83,000,000 and the operating ratio was 73.41 per cent. After payment of interest, the deficit was $39,407,225. In India, the average rate per ton mile is 1.078 cents, a trifle higher than in the United States. In the Empire of Japan, where the state operates 9,486 miles of railway, for 1933, the net revenue was $80,194,780 and the operating ratio was 62.23. The average rate per ton per mile on freight is 1.186 cents, substantially higher than in this country.

In the case of the state-owned South African railways, in 1933, 13,151 miles were operated, resulting in net revenue of $24,472,772 and an operating ratio of 75.61 per cent. The average rate per ton per mile on freight was 1.72 cents, practically 75 per cent higher than in the United States. Unfortunately, I am not able to present the results of operation in the Soviet Republic, since no sources of information are available for that censor-ridden land of darkness.

I am anxious not to be misunderstood and I am striving not to mislead. In some of the cases cited, I have not given the average rate per ton per mile applicable to freight, and the omission is due to lack of information and not to a desire to suppress the facts. I am aware, also, that rates per ton per mile are not always accurate indices, since they depend upon length of haul, the character of the traffic and other factors. I concede, too, that on the railways to which I have referred, passenger traffic is relatively more important than in the United States and that passenger traffic moves in Europe, Asia and Africa at rates as low or lower than in this country. But even with these modifications, I think it is apparent that we get no encouragement for changing our system from anything we can learn from turning our eyes away from North America.

It can be confidently stated that the unsatisfactory operating results and the relatively high freight rates prevailing on these foreign state-owned roads are not attributable to better labor conditions. While the facts about wages paid, measured by purchasing power and expressed in American dollars, are difficult to obtain in this period of fluctuating rates of exchange, yet the late W. N. Doak, at one time vice-president of the Brotherhood of Railroad Trainmen, in a radio broadcast said, in 1924, that while the weekly wages of a conductor in the United States would buy 840 lb. of bread, in Switzerland it

would buy 257, in Germany 238 and in Italy 189. Practically the same ratio applies as to the wages of engineers, firemen and maintenance men. If the wages of railroad employees in these three European countries are so far below the level of American wages, we can imagine conditions in Japan, India, Poland and the Soviet oligarchy.

Experience In Canada

But let us come nearer home and see what lessons we can learn from our thrifty and well governed neighbor on the North. There, due to circumstances which we need not explain in detail, The Dominion of Canada in 1919 created the Canadian National Railway, government-owned and operated, with a mileage of 23,743 miles in 1933. Occupying the same general territory, but with fewer branch lines, is the Canadian Pacific, privately owned and operated with 17,017 miles of railroad. The investment per mile on the Canadian National is $90,057; on the privately owned Canadian Pacific $68,700. In the period 1923-1933, the net income of the Canadian Pacific was $330,392,205; the net deficit of the Canadian National for the same period was $646,632,743. In the year 1933, on the state-operated line, the operating ratio was 96.16 and the net operating revenue was $5,700,000. Its net income for that year, after payment of taxes (only about 3½ per cent of total revenue, whereas in the United States taxes are 8 per cent of total revenues), rentals, interest and such like items, was a deficit of $96,-051,854. Contrary to popular opinion, the rate per ton per mile on freight traffic is only a little lower on the National Railways of Canada than in the United States, the figure being .972 cents for the Canadian National and .999 cents in the United States. The average revenue per passenger mile on the Canadian National is 2.261 cents, which should be compared with 2.013 cents in the United States.

Our Experience with Federal Control

Our own experience with federal control is fresh in the minds of many of you, or familiar from your reading. I shall not dwell upon it at any length. Those who favor the government ownership idea are forever explaining that this abnormal period furnishes no real test of the merits of their favorite nostrum. They point to the war conditions that then prevailed, and the confusion which resulted from the necessity of giving preference to the movement of war materials. But it must be remembered that of the 26 months of federal control, only 10½ were included in the actual period of the war. Nor can it be forgotten that it cost the taxpayers of the United States $1,600,000,000 to indulge in this experiment. Two features marked this adventure which may well have contributed to success. There was a very large, artificially stimulated volume of traffic and railroad patrons were patriotically patient. And yet the effort to handle our 250,000 miles of railroad by a single directing bureau at Washington was marked by poor service and huge deficits.

One would suppose that the burden of proof should rest rather heavily upon those who advocate so radical a departure as this from our traditional policy. Is it unreasonable to ask these reformers to point to a single instance where government ownership holds out a promise of improvement, either in economy, efficiency or improvement in labor conditions? Great Britain, after experimenting as did we with government operation in war times, returned the railroads to their owners. So did we, who follow the English tradition in our language, our laws and many of our modes of thinking. For my part, I would prefer that the Anglo-Saxon race beat out its own path, rather than to emulate the example of those continental nations who have surrendered their liberty.

But aside from the lessons we learn from other countries, let us examine the question in the light of reason and common sense. Mr. Eastman, with characteristic fairness, has marshalled, in his recent report, the arguments for and against the proposition. It is said that if the government were to take over the roads, such action would have a stabilizing financial influence by providing fixed ad interim rentals, thereby assuring a certain income. This means either that operating costs would be less, due to co-ordinated operation, a point we shall consider presently, or it means that the government will repeat its experience during the federal control period and pay deficits out of the public treasury. The second advantage is stated to be that the government, after acquisition of the lines, would spend large sums in rehabilitation projects, thereby stimulating business. Again, these sums so spent would come from the public purse, already growing flaccid from repeated exhausting demands. Of course, if the government has in fact the purse of Fortunatus, it could make us all rich and happy by a policy of reckless expenditure. As Mr. Eastman has pointed out in painting the other side of the picture, the cost of acquisition alone might so add to the public burden as to make doubtful the ability of the government to sustain it. In the third place, it is said government ownership would mean unification and co-ordination, resulting in decreased operating expenses and the improvement of net earnings.

Assuming efficiency in operation, which all experience disproves, where would these savings come from? Obviously the greater part would come from reductions in numbers employed, a result against which Congress has already solemnly legislated. The present co-ordinating law, enacted ostensibly to effect economies, has failed in that purpose because of those clauses which prohibit savings at the expense of labor. It is now proposed, in certain quarters, that the government shall be permitted to do what has been denied to the private owners, viz., to discharge men because co-ordinations and unifications render their services no longer necessary. We are told, too, that duplicated service will be avoided under government ownership, and unprofitable lines either abandoned or reduced to the status of feeder lines. But at what price will these reforms be brought about? Is labor ready to accept this solution? And what of the welfare of communities thereby deprived of railroad service?

Certainly, I am not arguing for the continuance of wasteful methods and the continued use of obsolete facilities. I am only calling attention to the results that will follow the transfer of all the railroads to government control, and asking if the country is willing to pay this price. If it is true that the competitive principle in railroading should no longer survive, and I am not gainsaying it, then anti-trust laws applicable to railroads should be repealed and consolidations permitted without reference to conditions of labor or competition. In other words, if the American people are ready for co-ordinations on a wholesale scale, they can be secured without government ownership.

In the fourth place, it is said that government operation would avoid divided responsibility. This is not entirely clear, unless it is proposed that those who manage the railroads for the government shall be subject to no control in the public interest by a tribunal to which the public can appeal for relief. Hitherto, it has been supposed that some regulating body like the Interstate Com-

merce Commission would temper the rule of the bureaucrat. The argument for undivided responsibility seems to imply the contrary. If, however, it is meant that under government ownership there would be no divided responsibility, now unhappily distributed between the owners and the federal co-ordinator that hybrid condition can be easily remedied by allowing the co-ordinator statute to die a natural death.

In the fifth place, it is said that government-made rates would be influenced by public policy more than at present, although they should be self-supporting. What can this mean but that rate-making policies would be determined not by economic considerations, but according to the will of the dominant faction in Congress? Does this mean that when the Republicans are in power, the normally Republican state of Pennsylvania will have its way as to lake cargo coal differentials, only to have the situation changed when the pendulum so swings as to make the Democratic state of Kentucky influential in the Nation's councils?

And, finally, it is said that the public would have greater confidence in the conclusions of government operators than in those who manage the railroads for the owners. But this seems to me highly doubtful. After some years of acquaintance with public officials and railroad executives, I should say that they are equally honest and equally patriotic, but that on the score of experience and special knowledge of the subject, the railroad executives are far better equipped for proper operation, a fact so obviously patent that the substitution of politically selected managers would not inspire confidence. These are the reasons advanced for this radical departure from our present system, and they seem to me wholly unconvincing.

It seems to me that the reasons given by Mr. Eastman why government ownership should not be accomplished at this time furnish abundant arguments against this being brought about at any time. The enormous addition to the debt burden already disconcerting, the probable necessity for subsidies, the influence of politicians on rate policies, the pressure of equipment manufacturers for an orgy of reckless spending, the likelihood of political control in the interest of place-seeking constituents, the necessity for extending ownership and control to competing forms of transportation, all these are mentioned by the Co-ordinator. Whether we test the question by the experience of other countries, or by the conditions that prevail in our own, we can find no sound reason for embarking on this un-American experiment.

N. I. T. League Takes Action on Legislation

(*Continued from page 566*)

be invoked by any division of the commission which might feel that the agency being administered by it might be injuriously affected by the action of another division or by any division where it desired its own action to be reviewed by the policy board. There would be no appeal to the policy board from decisions of any division by litigants before any division, thus preserving as far as possible independence of the respective divisions in their respective fields. The League is opposed to the proposal to have a permanent general chairman appointed by the President and a control board which may change commissioners from one division to another at will and have a general appellate power from decisions of divisions.

The League is opposed to the continuance of the post of federal co-ordinator of transportation, feeling that the majority of the functions now being performed by the Co-ordinator can be handled by the commission under the provisions of the Interstate Commerce Act as amended, and that certain investigations that have not been completed by the Co-ordinator can be carried to a conclusion by the commission. The League does not favor giving the commission power to issue any orders for the purpose of bringing about co-ordination beyond that which it would have under the Interstate Commerce Act and feels that the newly-formed Association of American Railroads should be given an opportunity to carry out the purposes of that organization.

The League went on record as opposed to the proposed dismissal compensation bill on the ground that this is a subject which should be handled by voluntary action of the railroads as it has been by industries and by certain railroads. The proposed law would take the money of the railroads for the purpose of benefiting individuals who are no longer in their service and that, the League felt, in effect would deprive the railroads of their property without due process and would create a vested right in a position held by an employee.

The Rate Construction and Tariff committee of the League submitted a report, which was adopted, of its study of Co-ordinator Eastman's merchandise traffic report. The merchandise traffic report, according to the committee, is of unusual interest and should be endorsed by the League to the fullest extent possible, with the proviso that the carriers be petitioned to make the report effective as soon as practicable and with any improvements or changes necessary to advance the original thought behind the proposal. The committee took such action because (1) classifications and tariffs would be greatly simplified, (2) considerable savings in freight charges would be made, particularly in the higher rated merchandise, (3) it will provide for the co-ordination of transportation facilities, permitting effective operations of each in its own sphere of utility in co-ordination with other existing forms of transportation, (4) it would effect a major reduction in the size of tariff files, (5) it would effect a decrease in overcharge claims, (6) it would permit ready determination of rates between given points and (7) it would afford a practical, simple method of checking freight rates.

A Communication . . .

Inspection Trip for "Fans"

70 Park Ave., New York, N. Y.

To the Editor:

The many interesting and constructive letters in response to your excellent editorial on "Locomotives, Cars and Public Relations" denote the wide-spread interest in railroad matters. This enthusiasm seems to cut through all social, business and economic lines, for the lure of the "Iron Horse" knows no bounds.

For the benefit of the numerous railway "fans" in the New York district, it may be of interest to learn that a special trip has been arranged to permit exactly the type of inspections which they seek. This comprises a trip to Harmon, on the New York Central, on April 27, to inspect the engine shops, signal tower, afford opportunity to take pictures, get into the locomotives (steam and electric) and, in short, do everything which the "fans" have asked permission to do around railroads.

While it is being handled through three railroad societies, any other rail enthusiasts will be most welcome. Those wishing to accompany the party, which will leave Grand Central at 2.15 p. m. of April 27, may learn the details by communicating with the undersigned.

Franklin Snow.

NEWS

Resolution for Investigation of Railroad Financing Reported

The formal report of the Senate committee on interstate commerce, recommending passage of the resolution introduced by Chairman Wheeler proposing an investigation of railroad financing, was filed in the Senate on April 8 by Senator Wheeler in accordance with the vote of the committee on March 29.

"While it is not the intention of the committee to cast suspicion upon the financial structure of this industry," the report said, "it is felt that there are of record enough indications of mismanagement of financing in some systems to warrant proceeding in this inquiry. If, as hoped, these practices have been confined to only a few roads, confidence in railroad credit as a whole should be strengthened. If these practices have been more or less widespread, it is in the public interest that the facts be brought to light so that safeguards may be erected.

"The purpose of the resolution is to give Congress and particularly this committee an idea of the extent to which financial control of the railways has contributed to their perennial difficulties before the railways embark on another period of reorganization in which the public's stake and the government loans will be squeezed out. The current depression has demonstrated how clearly railroad management and railroad finance affect the entire American public. To bolster up the railroads, the United States government, already subject to severe financial burdens, has had to loan a number of railroads close to half a billion dollars, and the hearing brought out the fact that while $70,000,000 have been repaid, $50,000,000 are now in default. Indications are that before it gets through, the government will have to make additional large loans to some roads.

"In addition to the government money in the railroads, there are the investments of insurance companies and savings banks —in other words, the investments of the millions of policyholders and depositors in these institutions.

"While the short hearing that was held was in no sense a part of the investigation itself, testimony was given showing flagrant abuses, in the field of railroad financing. These abuses involved several roads operating quite extensive mileage, and of the financial interests which participated in some of these abuses are shown to have been connected also with the financing of all of the major railroad systems of the country.

"It was clearly brought out in the hearing that the Interstate Commerce Commission does not have adequate authority to deal with situations involving financial abuses. To illustrate, Commissioner Mahaffie testified that the commission had no access to the books of the investment bankers. Such bankers for one railroad purchased 275,000 shares of stock in another railroad—the one-third on their own account, they disposed of at a substantial profit, while the rest was held by the railroad at a loss. This transaction was not entered on the books of the railroad company, and the commission did not learn of it in time to prevent it.

"The committee does not feel that it is in a position, with the existing cloud hanging over railroad credit and without having the background which this resolution will afford, to help the railroad industry in its effort to obtain the credit necessary to assure its future in the field of transportation."

New Indiana Law Permits Passes

A bill passed by the Indiana State Legislature and signed by Governor Paul V. McNutt permits railroads and interurban lines and street car lines to issue passes to newspaper publishers and employees in exchange for advertising under a written contract.

Railroad Employment in March

Class I railroads as of the middle of the month of March had 977,591 employees, according to the Interstate Commerce Commission's monthly compilation of railroad employment. This was a decrease of 2.15 per cent as compared with March, 1934, but an increase of 0.89 per cent as compared with the number in February.

McAdoo Wants Railroads to Pay for Signs for Airplanes

Senator McAdoo, of California, has introduced in the Senate a bill to require railroads to paint or place on roofs of railroad stations, at their own expense, signs showing the name of the city or town in which they are located, to aid the pilots of aircraft.

Twin Zephyr Travels 431 Miles in 333 Min.

One of the twin Zephyrs, which the Chicago, Burlington & Quincy will place in service between Chicago and St. Paul, Minn., on April 21, covered the 431 miles between those cities on April 6 in 5 hr. 33 min., or an average of 77.65 miles an hour. This was a trial run. The train left Chicago at 8:10 a.m. and arrived in St. Paul at 1:43 p.m. At one time the train reached a speed of 104 miles an hour. The return run, completed at 8:12 p.m. on the same day, was made in 6½ hr.

Chicago-St. Paul Schedule of 6½ Hr. for Milwaukee's Hiawatha

Drawn by the first newly-built scientifically streamlined steam locomotives and designed for high-speed passenger service, the Chicago, Milwaukee, St. Paul & Pacific's new speed-lined train will be placed in daily round-trip service between Chicago and St. Paul, Minn., between May 15 and 30, on a schedule of 6½ hr. for the 410 miles. The train, to be known as the Hiawatha, will leave Chicago at 1 p. m., arriving at Milwaukee, Wis., at 2:15 p. m.; at St. Paul at 7:30 p. m.; and at Minneapolis, Minn., at 8 p. m. Returning, it will leave Minneapolis at 12:30 p. m.; St. Paul at 1 p. m.; and Milwaukee at 6:15 p. m., and will arrive at Chicago at 7:30 p. m. The train has been named after the Mohawk chief, whose legendary endowments, as immortalized by Longfellow, included swiftness of foot and because it will traverse territory rich in Indian lore.

The equipment will be brand new from the locomotive to the "beaver tail" car at the rear. All the coaches, the parlor cars and the cafe cars will be speed-lined, full size, of welded steel construction, about one-third lighter in weight than the cars generally in use. The cafe cars will have special buffet features and the luxuriously appointed coaches will have conveniences new to coach patrons. To reduce air resistance the contour of all cars will conform to the locomotives, presenting a smooth unbroken line from head end to the rear of the beaver tail cars at the end. All of the cars will be air-conditioned.

The oil-burning streamlined locomotives, ordered from the American Locomotive Company last September, embody many features entirely new in locomotive construction and were especially designed for this particular service. These locomotives have a steam pressure of 300 lb. and driving wheels are 7 ft. in diameter.

Emergency Rate Increases Effective on April 18

The railroads on April 11 filed with the Interstate Commerce Commission a master tariff to make the Ex Parte No. 115 increases in freight rates effective on April 18. This action followed conferences which tariff-publishing agents had held with the traffic department of the Association of American Railroads and with the commission on the details of the preparation.

The commission had previously issued a special permission authorizing the carriers to file tariffs covering the temporary emergency increases upon not less than five days' notice.

Steam Locomotive Will Hold Its Own, Says Dickerman

The prediction that "far from being done for, the steam locomotive may take the challenge of the oil-electric as it took the challenge of electricity, in its stride, as it were, and continue to rule the rails —at least the main-line rails" was embodied by William C. Dickerman, president of the American Locomotive Company, in an article entitled "There's Life in the Old Iron Horse!" which appeared in the April issue of the Scientific American. Mr. Dickerman's article is the first of a series of three which that magazine plans to publish on railroad motive power; the second, which states the case for Diesels and the third on railroad electrification have been prepared for subsequent issues respectively by George W. Codrington, president of Winton Engine Corporation, and G. I. Wright, chief electrical engineer of the Reading.

Mr. Dickerman readily concedes that Diesel-propelled locomotives, as well as electrified lines, have their undisputed places in the railroad picture—the former in switching service and the latter for congested routes where maximum utilization of track capacity is pertinent. He adds, however, that the record of the steam locomotive "is impressive" when its role in the post-war improvements in freight handling methods is considered—most impressive, in fact, when it is further realized that "60 per cent of the steam locomotives in the United States are 20 years old or older, and, therefore, do not reflect the enormous progress made by science during the last 20 years." More to the point, however, Mr. Dickerman thinks, is the fact that there is as yet "no multi-motored oil-electric unit of required horsepower for main-line freight hauling in existence, let alone in service" and thus it is to his mind "simply inconceivable, at least until the unexpected happens, that the oil-electric can as yet find place generally in main-line railroad freight hauling."

Continuing from this conclusion Mr. Dickerman held that, even if one carried the discussion no further, such a finding militates against the general acceptance of the oil-electric unit in main-line passenger service because the freight service is the "bread-basket" of the railroads. He pointed out that, in 1932, 41 per cent of the total passenger revenue was earned on 10 per cent of the country's railroad mileage represented by the New York Central, the New York, New Haven & Hartford and the Pennsylvania. From this observation he proceeded to resolve the issue of Diesel-electric vs. steam into one which turns on passenger transportation with the aspects of speed and comfort which are involved.

While he hailed the development of such streamlined trains as the Union Pacific M-10001 and the Burlington Zephyr and lauded the pioneers in this field "for the service they have rendered in energizing a new era in railroad travel," he nevertheless pointed out that a train of modern equipment hauled by a steam locomotive can meet all the requirements of normal day-to-day passenger service.

"In other words," he said, "particularly because air-conditioning removes the only remaining passenger objections to steam, it may be concluded that passengers in general will not know, and will care less in the future, which unit hauls them, if only they can travel as fast and as comfortably either way."

Further, in the foregoing connection, Mr. Dickerman called attention to the new coaches of the New Haven and the streamlined steam locomotives which are expected shortly to be delivered to the Chicago, Milwaukee, St. Paul & Pacific for service between Chicago and the Twin Cities. He described the characteristics of these new Milwaukee locomotives, using them as an example of how the steam unit has adapted itself to present day needs for, as he added, it is "the new, rather than the old iron horse," which is expected to hold its own.

In closing Mr. Dickerman sketched briefly the past 20 years' development in steam locomotive efficiency and suggested that the stage is set for science to make a major contribution to railroading "by applying, although tardily, its many accumulated findings to the generality of steam locomotives." It is his further thought in this connection that "we are entering upon an era certain to be characterized by extensive replacements as distinguished from repair, notably of passenger power units and passenger equipment, to the end that our roads can regain lost passenger traffic by providing the fastest, safest, most comfortable overland transportation."

Eastern Car Foreman's Association

The next meeting of the Eastern Car Foreman's Association will be held in the Engineering Societies building, 29 West Thirty-ninth street, New York, at 8 p. m., Friday, April 26. A paper on "Some Current Mechanical Problems" will be presented by W. G. Knight, mechanical superintendent of the Bangor & Aroostook.

Barge Act Extension

The Senate has passed a bill, S. 1994, introduced by Senator Johnson, of California, to amend the Inland Waterways Corporation act by adding the Sacramento and San Joaquin rivers to the bodies of water for which water carriers may apply for certificates of public convenience and necessity and joint rates with rail carriers.

Chicago-Pacific Coast Bus Time Reduced

The Interstate Transit Lines, motor coach operating subsidiary of the Union Pacific and the Chicago & North Western, has cut from 12 to 15 hrs. from the running time of its three daily transcontinental bus schedules between Chicago and Pacific Coast points, including Los Angeles, Cal., San Francisco, Portland, Ore., Seattle, Wash., and Vancouver, B. C. The running time will be from 70 to 72 hr., with only three nights on the bus. The schedules are arranged to provide daylight service between Chicago and Omaha, and between Omaha and Denver.

P. R. R. Passenger Service Completely Electrified on N. Y.-Washington Line

The Pennsylvania on April 7 completed the conversion from steam to electric operation of its entire regularly-scheduled through passenger service between New York, Newark, N. J., Philadelphia, Pa., Wilmington, Del., Baltimore, Md., and Washington, D. C. This involves the operation of 639 daily trains, including 191 through trains drawn by electric locomotives and 448 multiple-unit commuter trains.

The change was made progressively over a period of eight weeks, beginning with February 10, when the two "Congressionals," both northbound and southbound were for the first time operated out of New York and Washington with new streamlined electric locomotives. The conversion of the freight service is expected to be initiated within the next few weeks and will include 47 through trains, thus making a total of 686 week-day trains, both passenger and freight, operated by electric power.

Of the 28 streamlined electric locomotives of the P-5-A type ordered last year, 25 have been delivered and the remaining three are practically ready for delivery. It is anticipated that during the latter part of this month delivery will start on the 57 streamlined locomotives of the G.G.1 type, especially designed for the through passenger service and placed on order last fall. As these are delivered they will replace in the passenger service the non-streamlined locomotives at present in use and the latter will be transferred to the freight service after minor electrical alterations to adapt them to that type of operation.

A Public Works Administration statement, commenting upon the development as one representing the completion of "a major phase of one of the greatest projects financed by PWA," pointed out that on New Year's Eve, 1933, Public Works Administrator Ickes and the Pennsylvania officers signed contracts under which PWA undertook to loan the railroad approximately $80,000,000 for the completion of electrification, manufacturing equipment and other construction purposes. The construction and resultant employment was undertaken immediately with the result that approximately 25,000 persons received employment throughout 1934.

Several thousand men still are employed on this project. They are completing electrification of yards and terminals for freight service and building electric locomotives.

Besides the construction for electrification on the right-of-way, seven thousand freight cars and a hundred new electric locomotives were built in this PWA project. The freight cars were finished last December. Most of the employment brought under this project was of the indirect type. The railroad reported that over 3,000 separate contracts were let for construction of equipment and supplying of parts in 35 separate states, giving widespread reemployment where greatly needed. PWA has already begun to sell the railroad security accepted on the loans at a cash profit to the government.

Moreland Appointed Head of M. I. T. Electrical Engineering Department

Edward L. Moreland, senior partner in the engineering firm of Jackson & Moreland, Boston, Mass., has been appointed as head of the department of electrical engineering of the Massachusetts Institute of Technology to succeed Professor Dugald C. Jackson, who retires in June. The announcement, made on April 9 by Dr. Karl T. Compton, president of M. I. T., states that Mr. Moreland will continue his active affiliation with Jackson & Moreland although the future of the M. I. T. electrical engineering department "now becomes his primary interest."

Mr. Moreland was born at Lexington, Va., in 1885, and received his early education at the McDonogh School of McDonogh, Md., where his father was principal for several years, and the Boys'

Edward L. Moreland

Latin School of Baltimore, Md. He received his bachelor of arts degree from Johns Hopkins University in 1905, coming directly to M. I. T. for his advanced studies. Upon his graduation, he entered the Boston engineering firm of D. C. and Wm. B. Jackson, which in 1919 became the firm of Jackson & Moreland, from which Professor Jackson retired in 1930. The firm has directed many important engineering projects, including electrification of the Great Northern through the Cascades, and electrification of the suburban system of the Delaware, Lackawanna & Western.

During the war, Mr. Moreland served as captain and later as major of engineers in the A.E.F. After the armistice, he was appointed technical executive of the War Damage Board. He now holds the rank of lieutenant-colonel in the Engineers Officers Reserves, and is acting chief of the Boston Power Zone.

As a fellow of the American Institute of Electrical Engineers, Mr. Moreland has been active on many of its committees and is now chairman of its standards committee. He has also been active in the American Standards Association, representing the American Institute of Electrical Engineers on the standards council, the sectional committee on standardization of mercury arc rectifiers, of which he is chairman, and the American advisory committee of the international electro-technical commission on electric traction equipment. He is a fellow of the American Academy of Arts and Sciences, and a member of the American Society of Civil Engineers, and the American Society of Mechanical Engineers, representing the latter on the A.S.A. sectional committee on standardization of pipe flanges and fittings.

San Diego Exposition

American railroads have approved extensive service plans for passengers traveling to the coming California Pacific International Exposition in San Diego, Cal., from May 29 to November 11. In addition to the programs of air-conditioned trains, attractive low round-trip fares, deluxe cars and liberal service features, a series of all-expense tours have been arranged through the co-operation of the American Express Travel Service. These excursions will be operated from all points and will consist mainly of a series of all-expense arrangements in San Diego. They are patterned after the tour program that was successfully conducted at the Chicago World's Fair and will include sightseeing at the exposition and in the city environs. Two, three, four, five and six-day excursions in San Diego and to points of interest in Mexico will be among the attractions. Prominent in the railroad program will be the interchange of scenic routes, with liberal stop-over privileges, extending from all parts of the country to the exposition city and to California and the Pacific Northwest over all railroads.

Twentieth Century Limited Schedule to Be Cut to 17 Hr.

The New York Central's "Twentieth Century Limited" will be operated in both directions between New York and Chicago on a 17-hr. schedule when the new time-tables become effective with the advent of Daylight Saving Time on April 28. This reduction of 45 min. from the existing 17¾-hour schedule will involve the operation of the train for the 960 miles at an average speed, including six stops westbound and five eastbound, of 56.47 m.p.h. and at a maximum speed of 75 m.p.h. The 17¾-hour schedule has been in effect for two years, prior to which it was for about one year 18 hr., having been cut from 20 hr. on April 24, 1932.

Thus, as the New York Central announcement points out, "progressive reductions have, in three years, shortened this train's running time by a total of three hours." The statement also calls attention to the fact that during the past ten years the Century handled more than 1,600,000 passengers and that for years the train has earned more gross revenue than any other train in the world. It will celebrate its thirty-third birthday on June 15.

Under the new schedule, the westbound Century will arrive in Chicago and the eastbound Century in New York at the same hour each day, 9 a. m., Daylight Saving Time; daily departure from New York will be at 5 p. m. and from Chicago at 3 p. m., Daylight Saving Time. The Boston section will leave that city at 2:25 p. m., Daylight Saving Time, and arrive there at 11:35 a. m., Daylight Saving Time.

Beatty Calls Public Ownership of C. N. R. Accident, Not Experiment

Arguing in support of his proposal for amalgamation of the Canadian National and the Canadian Pacific for operating purposes, E. W. Beatty, chairman and president of the Canadian Pacific, told an audience in Toronto last week that public ownership of the Canadian National is an "experiment" which "could not meet prudent tests."

"I do not deny the possibility of public ownership of public utilities being established on sound and satisfactory lines," he said. "I believe, however, that there could be no worse service to the cause of public ownership than to gloss over its failures or hide the fact that they may do permanent damage to the economic structure of the nation."

A full accounting, Mr. Beatty said, would show a cost to Canada of the "National Railways adventure" of more than $3,000,000,000. "Do we show any signs of being warned by experience in this case?" he asked. "An organized drive to obtain a writing down of the capital obligations of the National Railways is now in progress."

Mr. Beatty scored what he termed the feverish search of public bodies for new sources of revenue, and consequent conflict of taxation.

"There can be but one end to this, and that will be the destruction of the credit of all our public authorities unless they are to be relieved of the need of care, as some people suggest by an unlimited printing of fiat money, the consequences of which you know.

"We can go a long way further than we ever have in the direction of providing greater social justice. This means additional burdens on the shoulders of industry and additional calls on the purse of the state, and that makes it imperative to close all existing leaks and to revise or reverse all national policies which have been leading us into debt.

"By every test which I can apply the Canadian National Railways cannot be regarded as an honest experiment in public ownership. It is nothing more nor less than a sad accident. How long will you listen to those who now try to pretend that, in offering a plan to relieve the people of Canada of at least a part of their great burden, I am directed by sheer hostility to the principle of public ownership? And that I am merely an agent of predatory capital seeking to despoil the people? Is it not rather the case that my opponents, seeking to offer the plea that the Canadian National is a great example of the benefits of that system, are perverting the facts? And that convinced believers in public ownership should refuse to accept this unfortunate case as the sort of thing which their plan would produce.

"If the alterations in our economic system are to be anything short of its destruction, I suggest that we should measure them in the light of our experience in the accidental public ownership of a railway system."

U. P. Renovating Passenger Cars

The Union Pacific is air-conditioning 40 coaches and chair cars for main-line

passenger service as part of its program for improving passenger service. The cars will be completely renovated and redecorated, and the seats will be upholstered. A porter will be assigned to each to give coach and chair-car passengers the same character of attention provided in other cars. The new porters will have uniforms of blue and gray.

"400" Completes Successful Third Month

The Chicago & North Western's "400" has completed its third month of service between Chicago and the Twin Cities, carrying almost 10,000 passengers, or a total of 28,000 for the three months. During March, the trains averaged 160 passengers each way each day, while on March 31, a total of 257 were carried on the northbound trip. To handle the 257 passengers on March 31, it was necessary to add a coach at Milwaukee, but the train reached Minneapolis four minutes ahead of schedule.

Club Meetings

At the annual election of the Transportation Club of San Francisco (Cal.) held on March 11, the following officers were elected for the ensuing year: President, J. J. Livingston; first vice-president, A. Szabo; second vice-president, Robert J. Martin; secretary, P. C. Paddock.

Col. Henry W. Anderson, co-receiver of the Seaboard Air Line, will address the Richmond (Va.) Traffic Club at its next meeting to be held at the Hotel John Marshall in that city on April 15.

Robert M. Van Sant, director of public relations for the Baltimore & Ohio, was the speaker at the Traffic Club of Baltimore's regular monthly meeting held at the Lord Baltimore hotel in that city on April 2. Mr. Van Sant's subject was "Is Government Ownership a Real Threat?"

House Bill Would Confer Broad Powers on President in Time of War

The House of Representatives, in passing the bill to "take the profits out of war," has adopted an amendment providing for the conscription in time of war of "all persons responsible for the management, direction, and control of industry, commerce, and transportation." The bill also provides that in the event of war the President shall have power to determine and publicly proclaim from time to time the material resources, industrial organizations, and public services over which government control shall be necessary, and to commandeer them for use by the government. Provision is made for taxes on war profits and limitation of salaries and prices, the latter to be based on those prevailing at a specified date prior to the emergency.

Chicago-Lake Louise Time Cut

The Mountaineer, a new fast train cutting 3 hr. 45 min. off the eastbound schedule and more than 1 hr. off the westbound running time, will be placed in service between Chicago and Vancouver, B. C., by the Chicago & North Western, the Minneapolis, St. Paul & Sault Ste. Marie and the Canadian Pacific on June 30, to handle vacation travel to Banff, Lake Louise, Emerald Lake and Alaska. The new train will replace the Soo Dominion and will be in service until August 29, leaving Chicago at 10 a.m. daily on the westbound trip and arriving at Vancouver, B. C., at 8 a.m. the third day. The time to Banff, the second morning out of Chicago, will be 1 hr. 30 min. better than a year before, while the run to Lake Louise will be 1 hr. 40 min. faster. Eastbound, the train will leave Vancouver at 6:30 p.m. instead of 2:45 p.m. and will arrive in Chicago at 7:05 p.m. the third evening, a cut of 3 hr. 45 min.

Atlantic States Shippers' Board

The Atlantic States Shippers' Advisory Board held its regular meeting at Newark, N. J., on April 4, with an attendance of about 400. The reports of commodity committees combined show a slight decrease in the total of expected shipments the current quarter, as compared with the movement in the second quarter of 1934, though there were considerable increases and decreases in some commodities.

The meeting went on record as opposed to the continuance of the office of Federal Co-ordinator of Transportation, and also expressed disapproval of the various bills in Congress which would increase the cost of railroad operation. A report of a special committee of seven was adopted, in which the proposed ship canal across New Jersey is disapproved. The estimated prospective tonnage by canal would not justify the cost of construction and maintenance.

The meeting recommended the regulation by the Interstate Commerce Commission of all forms of transportation.

Gunmen Hold Up Illinois Central Train

Four masked gunmen, on April 4, held up passengers on the "Louisiane" of the Illinois Central between Chicago and Kankakee, Ill., and after shooting one passenger and robbing nearly all of the others, leaped from the train at Kankakee, commandeered an automobile and escaped. The train, carrying two mail cars, two baggage cars and 10 sleeping cars and coaches, left Chicago at 6 p.m. and upon stopping at Sixty-third street, was boarded by the four robbers, who remained quietly in their seats until the train reached Matteson, 28 miles south of Chicago. At this point the bandits, with handkerchiefs bound over their faces, ordered the passengers, at the point of a gun, to lie down. After locking both doors to the club car, the bandits passed into the next car to the rear, a Pullman, forcing the porter and conductor of the train to go with them. In each car they used the same tactics employed in the club car, firing at least once to terrorize their victims. One passenger, mistaking the bandit for a prankster, grabbed for the robber's gun and was shot.

Rivers and Harbors Bill Passed by House

The House of Representatives on April 8 began debate on a rivers and harbors bill providing for the authorization of 204 projects, 77 of which are now under way with funds provided from emergency appropriations and 127 of which have been recommended by the Chief of Engineers. The total estimated cost of the projects is $272,132,172, of which $58,067,499 has already been provided from funds of the Public Works Administration.

The bill was passed, with some changes, on April 9, to the accompaniment of many speeches declaring water transportation to be the cheapest form of transportation, on the basis of the low cost on the Great Lakes. Several speeches also included comparisons of the annual cost of maintaining the rivers and harbors, divided by the total tonnage of freight, including that on the Great Lakes and the ocean, compared with the cost of maintaining the railways, including not only maintenance of way and structures but also maintenance of equipment.

M. P. Competes with Zephyr

The Missouri Pacific has cut the running time of steam trains No. 105 and No. 106, to 3 hr. 59 min. for the 199 miles between Omaha, Neb., and Kansas City, Mo., to compete with the Chicago, Burlington & Quincy's Zephyr, the schedule of which has been reduced from 4 hr. to 3 hr. 55 min. for the 196 miles between these points. The M. P. train, now known as the Marathon, leaves Omaha at 8 a.m. instead of 8:05 and arrives at Kansas City at 11:59 a.m. instead of 1:30 p.m., the average speed being 49.96 miles per hour. Returning, the train leaves Kansas City at 4:30 p.m. instead of 4:10 and arrives in Omaha at 8:29 p.m. instead of 9:15. Cars from Lincoln, Neb., leave at 7:25 a.m. instead of 6:45 a.m. and connect with the Marathon at Union, while returning from Kansas City they arrive at Lincoln at 9:10 p.m. instead of 10 p.m., thus placing Lincoln on a schedule of 4 hr. 34 min. southbound and 4 hr. 40 min. northbound for the 212.8 miles. The train consists of a baggage car, air-conditioned deluxe coaches and an air-conditioned dining-parlor car, with air-conditioned coaches between Lincoln and Union.

P. R. R. Passenger Traffic Officers Optimistic After 1934 Upturn

After an unbroken decline extending over ten consecutive years, the Pennsylvania for 1934 reported an increase in passenger business as compared with 1933. Last year 55,582,000 passengers were carried, as compared with 52,890,000 in the previous year. Passenger miles rose from 2,020,000,000 to 2,214,000,000, an increase of nearly 10 per cent, while passenger revenue was up from $52,980,000 in 1933 to $57,791,000 last year. Indicating a more effective utilization of passenger equipment, the earnings per passenger train-mile were 10 per cent more in 1934 than 1933, while the average passengers per train increased by about 13 per cent.

Pennsylvania passenger traffic officers attribute the improved showing, in the main, "to the impetus of progressive improvements in the service, particularly the great extension of air-conditioning and the inauguration of faster and more convenient schedules on many important trains." Other contributing factors, in their opinion, are the "growing appreciation on the part of the general public of the convenience, comfort, economy and, above all, the

outstanding safety of rail travel." Air conditioning, the statement further says, "is believed by the Pennsylvania management to be the most outstanding development in passenger service since the adoption of steel cars. It is anticipated that the large additions to the Pennsylvania's air-conditioned equipment which will be made before the coming summer will be a powerful factor in the further recapture of passenger traffic."

Lackawanna Exhibition Train

The Delaware, Lackawanna & Western, beginning April 14 and continuing for over three weeks, is to exhibit a train of passenger and freight cars in the principal communities along its lines, the list of stops including 40 cities and towns. The time allowed at the stops ranges from one hour to a day and a half.

These exhibits are designed to show to the communities along the lines the latest arrangements and devices adopted by the road to insure safety, comfort and punctuality. There will be one of the aluminum-finished coaches used in the electric suburban service to and from New York City, an air-conditioned coach and a dining car; a steel hopper coal car and two box cars with latest improvements.

City officers, commercial leaders and others will be invited to the exhibition at each place. The train will be hauled by one of the large new Pocono locomotives.

Proposal to Investigate Train-Dispatching

An investigation by the Interstate Commerce Commission of conditions prevailing in railroad train-dispatching offices with a view to prescribing rules and regulations governing the working conditions is proposed in a bill introduced in the Senate on April 4 by Senator Wheeler, of Montana, chairman of the Senate committee on interstate commerce. The subject is one which has been agitated at Congressional hearings for some time by J. G. Luhrsen, president of the Train Dispatchers' Association. The bill, S. 2511, provides for an investigation by the commission or an investigator designated by it, on complaint or on its own motion, of conditions in any train-dispatching office, after which the commission would be authorized to order a carrier to remove, discontinue, or modify any unsafe condition, method, rule, or practice within a specified time. The commission would also be authorized after hearing to prescribe and enforce by appropriate order such conditions, methods, rules, and regulations as it deems necessary in the interest of safe operation.

Work-Relief Resolution Passed

The work-relief resolution, appropriating $4,000,000,000 to be expended by the President for work relief in the next two years, has been passed by both houses of Congress and was signed by the President on April 8, but no announcement has been made as to any new organization to administer it. The President stated on Wednesday that most of the amount would be expended by existing agencies of the government, all of whom have been studying various project plans for a long time, but it was expected that he would appoint some kind of advisory board to aid him in reaching decisions as to the general allocations. The resolution rather loosely provides for $800,000,000 to be expended for highways and grade crossing elimination, but the President may change the amount by transfer to or from other classifications and it will be necessary for someone to decide how much is to be used for grade crossings. The resolution also extends the life of the Public Works Administration for two years, thus continuing in effect the law under which it may make loans to railroads for equipment and maintenance. Representative Cartwright, chairman of the House committee on roads, has put into the Congressional record a tabulation showing how much would be allocated to the various states for highways and grade crossings under the terms of the resolution on the assumption that $300,000,000 of the $800,000,000 would be allocated for grade crossings. Under the resolution this would be apportioned to the states by the Secretary of Agriculture, because the Bureau of Public Roads is in his department, on a basis giving 50 per cent weight to population, 25 per cent to mileage of federal-aid highway systems and 25 per cent to railroad mileage. On this basis $300,000,000 would be apportioned to the states as follows:

Alabama	$6,219,000
Arizona	1,956,000
Arkansas	5,493,000
California	11,382,000
Colorado	4,086,000
Connecticut	2,622,000
Delaware	663,000
Florida	4,350,000
Georgia	7,566,000
Idaho	2,610,000
Illinois	15,780,000
Indiana	7,872,000
Iowa	8,595,000
Kansas	7,932,000
Kentucky	5,682,000
Louisiana	4,950,000
Maine	2,202,000
Maryland	3,210,000
Massachusetts	6,330,000
Michigan	10,146,000
Minnesota	8,280,000
Mississippi	5,025,000
Missouri	9,492,000
Montana	4,284,000
Nebraska	5,556,000
Nevada	1,371,000
New Hampshire	1,272,000
New Jersey	6,114,000
New Mexico	2,742,000
New York	20,790,000
North Carolina	7,470,000
North Dakota	5,106,000
Ohio	12,840,000
Oklahoma	7,149,000
Oregon	3,633,000
Pennsylvania	17,703,000
Rhode Island	1,077,000
South Carolina	4,530,000
South Dakota	4,392,000
Tennessee	5,829,000
Texas	16,773,000
Utah	1,923,000
Vermont	1,128,000
Virginia	5,817,000
Washington	4,707,000
West Virginia	4,125,000
Wisconsin	7,734,000
Wyoming	2,178,000
District of Columbia	603,000
Hawaii	711,000
Total	$300,000,000

Hudson Bay Road Losing Money

The Hudson Bay Railway, the elevator at Churchill, Man., and the port itself, lost $207,000 last year in operation and maintenance expenses, Minister of Railways R. J. Manion announced in the House of Commons at Ottawa last week. He expected about the same result from this season's operations.

Canada's far-northern port and railway cost about $53,000,000, but no interest charges were added last year to the operating statement. The railway lost $137,000; the port lost $87,000, but the elevator made $17,000.

Dr. Manion believed the railway eventually will pay its way "when the West returns to normal." The elevator is full of grain, but the railway so far has not justified itself from a traffic viewpoint.

Barney Stitt (Cons., Nelson), in whose constituency the port lies, said he welcomed the reductions in marine insurance rates to go into effect this season, but claimed they were not enough. The insurance rate on a grain vessel out of Montreal is $1,812 and out of Churchill, $10,312.

Stevedoring charges at Churchill also are too high, Mr. Stitt said. Comparable figures were Montreal, $620, and Churchill, $1,377, and he urged they be reduced at the Hudson Bay port.

W. L. White Resigns As President of Short Line Association

At a meeting of the directors of the American Short Line Railroad Association in Washington on April 5, W. L. White resigned as president, effective on June 30, to resume his business connections in California. He was general manager of the Yosemite Valley until he was elected president of the association in June, 1933. The board is to meet in June to elect his successor and it was decided to hold the next annual meeting at New Orleans in October.

The board also adopted a resolution endorsing and commending to the attention of the administration the name of Moultrie Hitt, of Georgia, for appointment as a member of the Interstate Commerce Commission. The resolution commended the record of P. J. Farrell, whose term as a commissioner expired on December 31, and said that his reappointment would be entirely acceptable to the association, but it also recognized the justice of appointing a member from the southeastern states and said that if future appointees to the commission are to be made of men qualified by special experience in any special field of transportation "the short line railroad constitute such a distinct field" and are just as much entitled as the highways, waterways, or airways to have on the commission an appointee having such special experience.

Port of New York Authority Annual Report for 1934

The 1934 annual report of the Port of New York Authority complains that railroads serving that city are not according to the Union Inland Freight station, which is located in the Port Authority Commerce building, the same treatment as is accorded other Manhattan freight stations. "The movement of inbound less-than-carload freight through the Union station," the report sets forth in this connection, "is being retarded by the carriers' failure to agree to the same treatment in their tariffs as their other Manhattan stations. This discrimination has been called to the car-

riers' attention but so far they have been unwilling to rectify it."

Despite this situation, however, the report is able to point out that the Union Inland station now handles the largest outbound l.c.l. tonnage of any station in Manhattan and that the total tonnage handled through the station, both inbound and outbound, increased by 60,000,000 lb. or 72 per cent during the second year of operation. The income account for the Port Authority Commerce building, which houses the Union Inland station, shows that from March 1 to December 31, 1934 this facility operated at a deficit of $441,378. Its gross revenues for the 10 months were $471,361 but total deductions were $912,739, including operating expenses of $295,434, interest of $566,667 and other income charges of $50,638.

With reference to the proposed freight tunnel between Jersey City and Brooklyn under New York bay, which is contemplated in the "comprehensive plan" of port development adopted several years ago, the report says that "the construction of this facility is awaiting a practicable plan for its financing."

C. N. R. Economist Favors "Co-operation" Rather Than Merger

Anyone who thinks substantial savings could be made by amalgamation or unification of the Canadian railways on the basis of present traffic levels is "badly mistaken," S. W. Fairweather, director of the Canadian National's bureau of economics, told the House of Commons Railway and Shipping Committee at Ottawa last week.

Hon. William D. Euler (prominent Liberal, and advocate of amalgamation under government ownership) asked if Mr. Fairweather was making the deliberate statement that no greater economies could be effected by amalgamation than by co-operation. Mr. Fairweather replied that over a period of years greater economies could be effected through co-operation than by amalgamation.

"Utterly absurd," said Mr. Euler.

Hon. C. P. Fullerton, chairman of the C. N. R., testified that modest economies had been made through pooling of train services and the like during the past two years. In 1933 the saving was $1,000,000 and last year it was $1,400,000.

He added that the C. N. R. desired to extend pooling arrangements west of Toronto, but the C. P. R. desired to maintain its Michigan connections.

Appointment of a sub-committee of three Deputy Ministers, Col. V. I. Smart, of Railways; W. Clifford Clark, of Finance, and W. Stuart Edwards, of Justice, was proposed by the Minister of Railways, Dr. R. J. Manion, to look into the practical possibilities of writing off about one billion dollars of Canadian National capitalization.

The Minister of Railways, in outlining his proposal to the House of Commons Committee on Railways and Shipping, recalled that Sir Henry Thornton in 1928 had suggested cutting down the capitalization by between $700,000,000 and $800,000,000. Mr. Matthews, of the firm of George A. Touche & Co., according to Dr. Manion, admitted his plan, recently submitted to the committee, was virtually the Thornton plan, with interest and deficits added.

Supply Trade

Safety Car Heating and Lighting Company Annual Report

The Safety Car Heating & Lighting Company for the year ended December 31, 1934, reported a profit available for dividends of $361,186 as compared with a 1933 profit of $231,176. During last year dividends involving a net outlay of $282,078 were paid, thus leaving $79,108 of the year's profit to be carried forward as an addition to surplus. The consolidated surplus account for the year ended December 31, 1934, follows:

SURPLUS—January 1, 1934			$1,678,210
GROSS PROFIT FOR YEAR		$702,661	
LESS:			
Inventory written down	$200,000		
Reserves for taxes	75,000		
Reserve for doubtful accounts, cash in closed banks and contingencies	33,809		
Bad accounts written off	27,153		
Depreciation on fixed assets acquired during 1934	5,513	341,475	
NET PROFIT		$361,186	
DEDUCT:			
Dividends paid during year 1934 aggregating $3.00 per share	$295,860		
LESS—Proportion thereof applicable to Treasury Stock	13,782	282,078	79,108
SURPLUS—December 31, 1934			$1,757,318

The consolidated balance sheet as of the close of last year lists total current assets of $4,126,742, including $1,687,557 in cash, as against total current liabilities of $260,308.

The **Bucyrus-Erie Company,** South Milwaukee, Wis., has moved its New York office to the RCA building in Rockefeller Center.

William M. Hager has been elected a vice-president of the **American Car & Foundry Company,** New York, and **Howard C. Wick** was appointed assistant to the president; Mr. Wick will continue also as secretary of the company.

John R. Tillman, for a number of years head of the tool engineering of the **Bullard Company,** Bridgeport, Conn., has been appointed assistant to Dudley B. Bullard, vice-president in charge of engineering. In his new capacity of chief executive engineer Mr. Tillman has the supervision of all departments of engineering.

The Republic Steel Corporation, Youngstown, Ohio, will move its New York district sales office on May 1 to the Chrysler building; **W. H. Oliver,** district sales manager, is in charge of this office; the export department, under the direction of **D. H. Bellamore,** general export manager, will also be located in the Chrysler building. The company has appointed the **Gilmore Steel & Supply Company,** San Francisco, Cal., as one of its warehouse distributors of Enduro stainless steel.

John L. Hall, senior member of the firm of Choate, Hall & Stewart, Boston, Mass., has been elected a director of the **Westinghouse Electric & Manufacturing Company.** Mr. Hall is a director of a number of other companies including the New York, New Haven & Hartford, the New York, Ontario & Western, the New England Steamship Company and the Connecticut Company.

H. H. Hale of the H. H. Hale Company, San Francisco, Cal., has been appointed representative for the Pacific Coast region of the **Graham-White Sander Corporation,** Roanoke, Va. Mr. Hale was formerly master mechanic on the Southern Pacific and later superintendent of motive power of the Cincinnati, Hamilton & Dayton, now part of the Baltimore & Ohio. Among other supply lines Mr. Hale represents the Galena Signal Oil Company on the Pacific Coast.

OBITUARY

John Hill Whiting, chairman of the board of the Whiting Corporation, Harvey, Ill., died on April 6 at the age of 84.

Equipment and Supplies

LOCOMOTIVES

THE UNITED STATES NAVY DEPARTMENT, BUREAU OF SUPPLIES AND ACCOUNTS, Washington, D. C., has ordered from the American Locomotive Company two 300 hp. Diesel-electric switching locomotives weighing about 60 tons, to be equipped with McIntosh & Seymour engines. Inquiry for this equipment was reported in the *Railway Age* of March 2.

PASSENGER CARS

THE KEY SYSTEM, LTD. is inquiring for 40 articulated units of two cars each and 14 extra single bodies. This is in addition to its inquiry for about 22 similar units, reported in the *Railway Age* of December 22, 1934.

MOTOR VEHICLES

THE NORFOLK SOUTHERN BUS CORPORATION has accepted delivery of one streetcar type A.C.F. bus of 36 passengers capacity.

IRON AND STEEL

THE KANSAS CITY SOUTHERN has ordered 2,000 tons of rails from the Illinois Steel Company.

NEW YORK CENTRAL.—A contract for 330 tons of steel for a bridge at West 171st street, New York, has been let to the

McClintic-Marshall Corporation. The New York Central has also received bids on 500 tons of steel for grade crossing elimination work at Utica, N. Y.

AIR CONDITIONING

SOUTHERN.—Work has already been started on the installation of air-conditioning equipment in 150 Pullman sleeping cars and 25 Southern dining cars to be ready for service not later than June 1, on all Southern through long-distance trains. The sleeping cars are being equipped by The Pullman Company in its various shops and will be turned over to the Southern and placed in service as fast as they are completed. The dining cars are being air-conditioned by the Southern in its own shops and will be equipped with steam ejector systems furnished by the Safety Car Heating & Lighting Co.

Construction

ILLINOIS DIVISION OF HIGHWAYS.—Contracts have recently been awarded for the construction of highway subways at the following highway and railroad intersections: Route 59 and Chicago, Burlington & Quincy west of Naperville, to Van Etten Bros. Builders, Inc., Chicago, $49,800; Route 47 and C. B. & Q. west of Bristol, to the Ferguson Construction Company, Rockford, Ill., $44,900; Route 130 and Baltimore & Ohio at Olney, to Otto Randolph, Inc., Chicago, $29,600; Route 119 and the Illinois Central at Rantoul, to the General Paving Company, Champaign, Ill., $32,700; Route 4 and the Illinois Terminal south of Madison, to the Richardson Construction Company, Decatur, Ill., $53,300; and Route 173 and the Chicago & North Western at Caledonia, to W. J. Howard, Inc., Chicago, $15,800. In addition, contracts have been awarded to the American Bridge Company, Chicago, the Blackwell Corporation, East St. Louis, Ill., and Thomas McQueen, Forest Park, Ill., for work in connection with the construction of a viaduct to carry Kingshighway over the tracks of the B. & O. and the Pennsylvania in St. Clair county, at a cost of $241,600.

PENNSYLVANIA - READING SEASHORE LINES.—This road has authorized the construction of track connections and the electrification of track, Beach Thorofare to Atlantic City, N. J., to cost about $25,000; also the revision of tracks west of Beach Thorofare, Atlantic City, to cost about $218,000.

WABASH.—Bids will be received on April 24 for the construction of a portion of the substructure of the bridge which this company has under construction across the Missouri river at St. Charles, Mo. This work will include the construction of the east and west abutments and concrete pedestals for the approaches on each side of the river spans. The construction of this bridge is being carried out with the proceeds of a loan of $2,350,000 from the Public Works Administration.

Financial

ANN ARBOR.—*R. F. C. Loan Extended.*—The Interstate Commerce Commission has authorized an extension for three years of a loan of $600,000 from the Reconstruction Finance Corporation to the receivers of this company, the latter reducing their indebtedness by $34,757 as a part of this transaction.

BALTIMORE & OHIO.—*R. F. C. Loan.*—The Interstate Commerce Commission has authorized this company to borrow an additional $5,000,000 from the Reconstruction Finance Corporation and to extend for two years an existing loan of $7,000,000 which matured April 8.

CHICAGO & NORTH WESTERN.—*R. F. C. Loan Extended.*—The Interstate Commerce Commission has authorized the extension for two years of a loan of $3,807,583 from the Reconstruction Finance Corporation to this company, which matured April 13.

Annual Meeting.—President Sargent told the stockholders at the annual meeting in Chicago on April 9 that the company did not intend to borrow more money to meet fixed charges. He did not predict failure to pay these charges, but assured stockholders that temporary suspension would not be cause for any particular alarm.

New Directors.—Ex-Governor Kohler of Wisconsin and Harry W. Rush have been elected to the C. & N. W. directorate.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*I. & L. Bond Committee.*—A committee, headed by Henry R. Hayes as chairman, and of which the secretary is Paul Porzelt, 25 Broad street, New York, has been formed to represent the interests of holders of first mortgage bonds of the Indianapolis & Louisville, due 1956, in the pending reorganization of the C. I. & L., which assumed the I. & L. bonds.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Abandonment and Trackage Rights.*—The Interstate Commerce Commission has authorized this company to abandon its line between a point in the vicinity of Chehalis Jct., Wash., and Dryad, 18.6 miles, and to operate over the Northern Pacific between those points. The latter company, in turn, has been authorized to abandon its line between St. Regis, Mont., and Haugen, 18.87 miles, and to operate between those points over the Milwaukee.

CHICAGO UNION STATION.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $16,000,000 of 4 per cent Series D first mortgage bonds and $2,100,000 of 4 per cent guaranteed bonds. The former issue matures in 1963 and the latter in 1944, but both will be redeemable after 1940. A sinking fund of $300,000 annually is provided for. Both issues will be sold to Kuhn, Loeb & Co., Lee Higginson Corporation, Brown, Harriman & Co., Inc., and associated firms—the first mortgage issue at 98½ and the guaranteed bonds at 99, making the interest cost to the company 4.09 per cent and 4.134 per cent, respectively. This is a refinancing operation, which will yield savings in interest (over the 6½ per cent first mortgage bonds being redeemed at 110) sufficient to provide the $300,000 sinking fund in the first year, which savings will increase yearly as the issues are retired. The proprietary companies in the station are guarantors of the bonds.

COLORADO & SOUTHERN.—*R. F. C. Loan.*—This company has filed its formal application to the Reconstruction Finance Corporation for a loan of $28,978,000 to provide for the maturity on May 1 of that amount of refunding and extension mortgage 4½ per cent bonds. It is proposed to offer the holders of the existing bonds new bonds extended for ten years at 4½ per cent interest, but with provision for a reduction by agreement between the company and the bondholders, and the R. F. C. has made a tentative commitment by which it would take such of the extended bonds as are not taken by the existing holders at 4 per cent interest.

The company has also applied to the Interstate Commerce Commission for authority to extend the bonds for ten years, with provision for a sinking fund by which in any year in which the company has net income over $500,000 one-half of the amount between $500,000 and $1,000,000 and all over $1,000,000 will be paid into a sinking fund for the purchase of the bonds, not to exceed 3 per cent of the maximum principal amount outstanding. The company has also asked authority to nominally issue $4,190,000 of general mortgage 4½ per cent bonds to be used as part collateral for the loan, and the Fort Worth & Denver Northern has asked authority to issue and deliver to the Colorado & Southern a promissory note for $4,182,000.

COPPER RANGE.—*Reorganization Petition Filed.*—This company has filed in the federal district court for the western district of Michigan and with the Interstate Commerce Commission a petition under the federal bankruptcy law stating that it is unable to meet its debts as they mature and desires to effect a plan of reorganization. The commission has added the names of William H. Schacht, president, and George Wescott, general manager, to its panel of standing trustees from which selections of trustees may be made by the courts.

DENVER & RIO GRANDE WESTERN.—*Annual Report.*—The 1934 annual report of this company shows net deficit, after interest and other charges, of $2,975,871, as compared with net deficit of $2,138,953 in 1933. Selected items from the income statement follow:

	1934	1933	Increase or decrease
Average Mileage Operated	2,559.94	2,497.27	+62.67
RAILWAY OPERATING REVENUES	$19,246,850	$17,112,793	+$2,134,056
Maintenance of way	2,259,508	1,640,960	+618,547
Maintenance of equipment	4,309,191	3,460,147	+849,043
Transportation	6,364,087	5,366,292	+997,795
TOTAL OPERATING EXPENSES	14,645,261	11,887,424	+2,757,836
Operating ratio	76.09	69.47	+6.62

Net Revenue from Operations	4,601,589	5,225,369	−623,780
Railway tax accruals	1,860,000	1,760,000	+100,000
Hire of equipment—Net Dr.	423,179	401,332	+21,847
Joint facility rents—Net	Dr. 2,797	Cr. 299,296	−302,093
Net Railway Operating Income	2,311,563	3,357,643	−1,046,079
Other income	Cr. 107,153	Dr. 115,198	+222,351
Available for Interest	2,418,717	3,242,445	−823,728
Interest on funded debt	5,394,588	5,381,398	+13,190
Net Deficit	$2,975,871	$2,138,953	+$836,918

Detroit & Mackinac.—*Annual Report.*—The 1934 annual report of this company shows net deficit, after interest and other charges, of $14,344, as compared with net deficit of $75,011 in 1933. Selected items from the income account follow:

	1934	1933	Increase or decrease
Railway Operating Revenues	$632,904	$601,960	+$30,943
Maintenance of way	114,118	115,187	−1,069
Maintenance of equipment	79,707	88,348	−8,641
Transportation—Rail	254,831	249,333	+5,497
Total Operating Expenses	514,332	508,924	+5,408
Net Revenue from Operations	118,571	93,036	+25,535
Railway tax accruals	1,733	42,747	−41,013
Railway operating income	116,813	50,272	+66,541
Equipment rents—Dr.	13,624	1,737	−11,886
Joint facility rents—Dr.	1,268	1,689	+420
Total income	107,506	46,976	+60,530
Interest on funded debt	110,000	110,000	.....
Income Balance Transferred to Profit and Loss	*$14,344	*$75,011	+$60,667

* Deficit.

Florida East Coast.—*R. F. C. Loan.*—The receivers have applied to the Reconstruction Finance Corporation for an extension for three years of the loan of $627,075.

Fort Smith & Western.—*R. F. C. Loan Extended.*—The Interstate Commerce Commission has authorized the extension for two years of a loan of $227,434 by the Reconstruction Finance Corporation to the receiver of this company, which matured on March 21. Application for authority for a further loan of $136,072 has been denied.

Pennsylvania.—*Annual Meeting.*—The annual meeting of the stockholders of this company was held in Philadelphia with an attendance of approximately 500. Several stockholders endeavored to discuss the Pennroad Corporation, which is not affiliated with the Pennsylvania, but the stock of which was originally offered to P. R. R. stockholders. Vice-president County explained that fair regulation of competitors, a cessation of wasteful legislation and an increase in traffic were needed to restore normal dividends to the road's stockholders. He said also that the electrification project now in operation between New York and Washington would reduce annual operating expenses by $7,500,000. A resolution to pay President Atterbury a bonus of $15,000 as a token of appreciation was referred to the directors. In the absence of General Atterbury, one of the directors, Effingham B. Morris, presided.

Kansas City Southern.—*Annual Report.*—The 1934 annual report of this company shows net deficit, after interest and other charges, of $1,009,127, as compared with net deficit of $1,244,546 in 1933. Selected items from the income statement follow:

	1934	1933	Increase or decrease
Average Mileage Operated	878.78	882.81	−4.03
Railway Operating Revenues	$9,650,064	$9,362,762	+$287,301
Maintenance of way	911,718	951,114	−39,396
Maintenance of equipment	1,644,292	1,639,523	+4,768
Transportation	3,060,842	2,872,491	+188,350
Total Operating Expenses	7,095,617	6,840,697	+254,920
Operating ratio	81.57	83.03	−1.46
Net Revenue from Operations	2,554,447	2,522,065	+32,381
Railway tax accruals	775,509	933,439	−157,930
Railway operating income	1,776,647	1,586,110	+190,536
Equipment rents—Net Dr.	402,438	345,255	+57,183
Joint facility rents—Net Dr.	82,756	79,181	+3,574
Net Railway Operating Income	1,291,452	1,161,673	+129,778
Non-operating income	835,746	719,430	+116,316
Gross Income	2,612,394	2,305,540	+306,854
Rent for leased roads	167,873	168,962	−1,089
Interest on funded debt	2,680,920	2,690,101	−9,181
Total Deductions from Gross Income	3,621,521	3,550,086	+71,435
Net Deficit	$1,009,127	$1,244,546	−$235,419

Meridian & Bigbee River.—*R. F. C. Loan.*—The trustee has applied to the Reconstruction Finance Corporation for a loan of $255,748.

New York Central.—*Extension of R. F. C. Loans.*—The Interstate Commerce Commission has authorized the extension for varying specific periods loans aggregating $15,600,000 from the Reconstruction Finance Corporation maturing during the current year; and has also authorized the company to withdraw $7,000,000 of Boston & Albany refunding 6 per cent bonds deposited as collateral for these loans, substituting other securities therefor.

Northern Pacific.—*Abandonment and Trackage Rights.*—See Chicago, Milwaukee, St. Paul & Pacific.

New Director.—At the annual meeting of this company held in New York on April 9, E. A. Gay, secretary, was elected to the directorate, succeeding the late J. F. Hannaford.

Norfolk Southern.—*Receivers' Notes.*—The Interstate Commerce Commission has authorized the receivers of this company to issue $83,060 of their notes to be delivered to the American Car & Foundry Co. in connection with the acquisition of four gasoline rail motor cars.

Southern Pacific—*Annual Meeting*—The entire board of 15 directors of the Southern Pacific Company was re-elected at the annual meeting of stockholders, which was held at Spring Station, Ky., on April 3.

Tennessee Central.—*Annual Report.*—The 1934 annual report of this company shows net income, after interest and other charges, of $38,263, as compared with a net deficit of $37,552 in 1933. Selected items from the income statement follow:

	1934	1933	Increase or decrease
Average mileage operated	287.90	289.85	−1.95
Railway Operating Revenues	$2,106,811	$1,923,154	+$183,657
Maintenance of way	340,419	321,160	+19,259
Maintenance of equipment	308,873	282,979	+25,894
Transportation	706,710	652,412	+54,298
Total Operating Expenses	1,554,997	1,431,674	+123,323
Operating ratio	73.81	74.44	−.63
Net Revenue from Operations	551,814	491,479	+60,335
Railway tax accruals	51,690	37,238	+14,452
Railway operating income	499,976	453,896	+46,080
Equipment rents—Net Dr.	158,765	182,140	−23,375
Joint facility rents—Net Dr.	5,803	5,458	+345
Non-operating income	13,436	11,641	+1,795
Gross Income	513,412	465,537	+47,875
Rent for leased roads	62,504	62,504	.....
Interest on funded debt	227,570	231,380	−3,810
Total Deductions from Gross Income	475,149	503,090	−27,941
Net Income	$38,263	*$37,552	+$75,815

* Deficit.

Average Prices of Stocks and of Bonds

	Apr. 9	Last week	Last year
Average price of 20 representative railway stocks..	30.80	28.79	47.73
Average price of 20 representative railway bonds..	71.73	70.32	79.66

Dividends Declared

Carolina, Clinchfield & Ohio.—$1.00, quarterly; Stamped Certificates, $1.25, quarterly, both payable April 20 to holders of record April 10.

Clearfield & Mahoning.—$1.50, semi-annually, payable July 1 to holders of record June 20.

Montgomery & Erie.—17½c, semi-annually, payable May 10 to holders of rceord April 30.

Northern R. R. of New Hampshire.—$1.50, quarterly, payable April 30 to holders of record April 8.

Piedmont & Northern.—75c, quarterly, payable April 10 to holders of record March 30.

Pittsburgh, Bessemer & Lake Erie.—75c, semi-annually, payable October 1 to holders of record September 14; 6 Per Cent Preferred, $1.50, semi-annually, payable June 1 to holders of record May 15.

Virginian.—Preferred, $1.50, quarterly, payable May 10 to holders of record April 20.

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

M. B. Pears has been appointed general claim agent on the Southern Pacific Lines in Texas and Louisiana, with headquarters at New Orleans, La., succeeding **C. R. Field.**

R. C. Otley has been appointed to the newly-created position of assistant general auditor of the Pullman Company, with headquarters at Chicago.

J. M. Souby, valuation and commerce counsel of the Union Pacific System, with headquarters at Omaha, Neb., has had his title changed to commerce counsel.

A. N. Whitlock, who has been appointed general attorney for the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Seattle, Wash., as noted in the *Railway Age* of March 23, was born on September 1, 1887, at Richmond, Ky. He attended the University of Kentucky, receiving the degree of A. B. in 1906 and that of M. A. in 1908, and obtained his

A. N. Whitlock

legal training at the Harvard Law school from which he graduated with the degree of LL.B. in 1911. Mr. Whitlock entered private practice in Montana and became a member of the law firm of Murphy & Whitlock at Missoula. As a member of this firm Mr. Whitlock was appointed local attorney for the Milwaukee in 1917 and solicitor for Montana in 1921, continuing in the latter capacity until his recent appointment. He has been a member of the faculty of the law school at the University of Montana since 1911, of which he was dean during the period from 1915 to 1919.

OPERATING

W. L. More, chief clerk to the superintendent on the Atchison, Topeka & Santa Fe at San Bernardino, Cal., has been promoted to trainmaster at Winslow, Ariz., succeeding **O. L. Gray,** who has been transferred to Fresno, Cal. Mr. Gray replaces **O. W. Schleuter,** who has been transferred to Bakersfield, Cal., where he takes the place of **N. E. Scott,** deceased.

A. Callan, acting district superintendent for the Pullman Company at Omaha, Neb., has been appointed district superintendent with the same headquarters.

J. G. Reid, assistant engineer on the Canadian Pacific, with headquarters at Prince Albert, Sask., has been appointed assistant superintendent, with the same headquarters.

G. H. Warfel, assistant to the executive vice-president of the Union Pacific, with headquarters at Omaha, Neb., has been appointed assistant superintendent, with headquarters at North Platte, Neb., succeeding **F. C. Paulsen,** who has been transferred. **F. P. Flesher,** trainmaster at North Platte, Neb., has been transferred to Green River, Wyo., where he replaces **J. H. Burnsmier,** deceased.

Gilbert W. Groom, superintendent of the Southern division of the Central Vermont, with headquarters at New London, Conn., has resigned to accept the position of general manager of the Central Vermont Transportation Company, which operates a freight boat line between New York and New London. **W. J. Riley,** assistant superintendent at New London, has been appointed acting superintendent of the Southern division. Mr. Groom was born at Rossville, Ill., and began his railway career as a telegraph operator for the Chicago & Eastern Illinois at Hoopeston, Ill., in 1890. Later he became agent of the St. Louis Southwestern and in 1893 was appointed dispatcher on the Chicago & Eastern Illinois at Danville, Ill. Mr. Groom also served as dispatcher on the Grand Trunk at Belleville, Ont., and was chief dispatcher of the Pere Marquette at Detroit from 1904 until 1908, when he entered the service of the Central Vermont at St. Albans, Vt. Four years later he was promoted to chief train dispatcher at St. Albans. He was appointed assistant superintendent at St. Albans in May, 1915, and superintendent of the Northern division at St. Albans in July, 1924. Mr. Groom was transferred to the Southern division at New London in September, 1932.

TRAFFIC

J. B. Young has been appointed assistant general coal freight agent for the Chesapeake & Ohio, with headquarters at Richmond, Va.

A. P. Boles has been appointed to the newly-created position of assistant general livestock agent of the Missouri Pacific, with headquarters at St. Louis, Mo.

E. H. Richards has been appointed general agent, freight department, for the Chicago & North Western at St. Paul, Minn., succeeding **J. P. O'Shaughnessy.**

The Detroit, Mich., freight traffic offices of the Baltimore & Ohio and the Alton have been consolidated with **J. R. Lee,** district freight representative, in charge. **Arthur Maedel** has been appointed district freight agent, with headquarters at Toledo, Ohio, succeeding **J. A. Boyce, Jr.,** resigned.

Benjamin T. Breckenridge, assistant general freight agent for the Illinois Central at Louisville, Ky., has been appointed general traffic agent with the same headquarters.

C. F. Swisher, division freight agent on the New York Central at Toledo, Ohio, has been promoted to the newly-created position of assistant general freight agent, with the same headquarters.

C. A. Fullen, assistant general agent of the Chicago Great Western at Portland, Ore., has been appointed general agent with the same headquarters, succeeding **J. H. Lyman,** deceased.

W. E. Hicks has been appointed to the newly-created position of general agent, executive department, of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn.

A. R. Menning, traveling freight agent at St. Paul, Minn., for the Grand Trunk Western, has been appointed general agent with the same headquarters, succeeding **R. M. Stubbs,** who has been transferred to Minneapolis, Minn. Mr. Stubbs replaces **C. J. Piper,** who has been transferred to Kansas City, Mo., to succeed **Robert Logan,** who goes to San Francisco, Cal., as general agent, to replace **James Waugh.** Mr. Waugh retired on March 31, after 44 years of service with this company.

C. A. Wagner, commercial agent for the Louisville & Nashville, at Indianapolis, Ind., has been promoted to general agent at Cincinnati, Ohio, succeeding **A. T. Wade,** who has been transferred to Pittsburgh, Pa., to replace **E. L. Blandford,** who goes to Evansville, Ind., as division freight agent. **H. B. Rothweiler,** commercial agent at St. Louis, Mo., has been promoted to general agent at the same point, succeeding **G. A. VanGieson,** who has been transferred to Cleveland, Ohio. Mr. VanGieson replaces **E. H. Wigand,** who has been transferred to Chicago to succeed **C. F. Stith,** who has been appointed division freight agent at Nashville, Tenn.

OBITUARY

John Cruikshank, retired general agent for the Union Pacific, died on March 30 at his home at Los Angeles, Cal.

J. H. Burnsmier, trainmaster on the Union Pacific at Green River, Wyo., died on March 26.

C. H. Rupert, who retired on December 31, 1929, as general baggage agent of the Chicago Great Western, died on April 5, at Los Angeles, Cal., at the age of 61 years.

The Baltimore & Ohio has leased its coal and ore docks at Toledo, Ohio, and Lorain to the Toledo, Lorain & Fairport Dock Company, a subsidiary of Oglebay, Norton & Company. The arrangement becomes effective April 16.

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1935

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1934
Akron, Canton & Youngstown	Feb.	171	$162,738	$36	$169,422	$12,502	$16,363	$7,865	$52,922	$10,266	$99,918	59.0	$69,504	$60,521	$43,705	$38,314
	2 mos.	171	335,289	52	350,730	28,138	30,385	15,513	110,597	21,122	205,755	58.7	144,975	126,904	96,155	60,309
Alton	Feb.	949	703,572	129,494	972,208	121,189	155,924	43,707	421,846	39,498	795,087	81.8	177,121	106,790	6,751	—20,452
	2 mos.	949	1,443,194	272,562	2,012,506	237,588	320,585	83,138	861,872	108,727	1,639,300	81.5	373,206	232,038	—12,829	—23,064
Atchison, Topeka & Santa Fe System	Feb.	13,307	7,299,211	978,710	9,125,994	1,270,377	2,518,081	373,764	3,546,014	624,531	8,343,988	91.4	782,006	—81,266	—154,929	243,737
	2 mos.	13,315	15,189,036	2,023,303	18,935,892	2,527,753	5,203,781	756,876	7,480,987	1,270,324	17,268,223	91.2	1,667,669	—64,829	—256,344	361,492
Atlanta & West Point	Feb.	93	77,226	18,112	112,731	16,906	22,693	6,267	49,762	6,605	104,878	93.0	7,853	568	—10,656	—5,920
	2 mos.	93	157,704	36,811	231,843	33,483	47,459	13,137	102,854	13,173	215,126	92.8	16,717	2,109	—20,642	—15,879
Western of Alabama	Feb.	133	66,496	18,850	100,312	20,305	29,850	6,364	44,315	5,856	108,975	108.6	—8,663	—16,759	—12,528	2,221
	2 mos.	133	135,548	37,870	202,437	39,590	58,291	13,343	92,231	11,799	219,516	108.4	—17,079	—33,270	—25,481	6,479
Atlanta, Birmingham & Coast	Feb.	639	197,392	5,439	231,891	38,319	45,345	21,415	92,931	20,982	229,974	99.2	1,917	—11,337	—24,397	—18,625
	2 mos.	639	385,276	11,873	454,906	80,527	90,312	43,119	192,668	42,364	470,664	103.5	—15,758	—42,075	—66,450	—47,325
Atlantic Coast Line	Feb.	5,147	2,356,929	897,810	3,758,521	420,352	651,965	115,170	1,363,917	129,930	2,742,574	73.0	1,015,947	613,629	518,619	807,119
	2 mos.	5,147	4,681,177	1,556,804	7,183,381	828,298	1,337,200	262,123	2,732,681	267,340	5,541,269	77.1	1,642,112	839,436	622,076	1,459,554
Charleston & Western Carolina	Feb.	342	151,178	1,067	156,729	24,739	24,273	5,471	54,909	4,537	113,929	72.7	42,800	26,300	25,865	43,545
	2 mos.	342	302,300	2,133	313,510	50,482	50,055	11,492	110,856	9,040	231,925	74.0	81,585	48,585	48,600	83,215
Baltimore & Ohio	Feb.	6,440	9,364,043	705,018	10,718,566	772,158	2,235,180	351,791	3,950,070	538,040	7,939,516	74.1	2,779,050	2,116,525	1,809,480	1,423,582
	2 mos.	6,440	18,905,475	1,505,274	21,756,375	1,600,464	4,505,020	660,040	8,132,181	1,108,479	16,196,451	74.4	5,559,924	4,224,075	3,603,438	2,648,493
Staten Island Rapid Transit	Feb.	23	42,359	70,962	119,814	12,260	14,512	1,662	83,602	13,427	125,463	104.7	—5,649	—22,249	—51,218	—6,726
	2 mos.	23	83,363	141,757	238,696	26,112	29,753	3,626	170,199	26,258	255,948	107.2	—17,252	—50,460	—111,781	—12,402
Bangor & Aroostook	Feb.	603	766,988	40,269	830,377	93,136	86,429	5,080	180,410	30,972	396,832	47.8	433,545	358,374	322,372	172,016
	2 mos.	603	1,443,719	74,747	1,563,955	211,374	169,989	9,660	351,683	64,478	808,687	51.7	755,268	624,205	568,709	386,357
Bessemer & Lake Erie	Feb.	225	407,316	781	417,249	41,229	243,646	11,597	122,870	44,697	464,028	111.2	—46,779	—67,460	—31,397	—112,327
	2 mos.	225	796,714	1,681	817,120	79,297	514,347	22,960	245,909	89,517	952,019	116.5	—134,899	—176,411	—125,320	—254,036
Boston & Maine	Feb.	2,038	2,514,547	597,656	3,587,060	410,513	585,392	63,243	1,518,412	166,505	2,758,838	76.9	828,222	638,266	461,327	138,046
	2 mos.	2,038	4,916,890	1,221,820	7,097,413	1,042,772	1,148,723	117,692	3,124,486	335,547	5,793,971	81.6	1,303,442	923,252	545,276	544,511
Brooklyn East. Dist. Term	Feb.	10.91	73,189	.....	75,498	3,818	8,248	266	23,983	6,574	42,889	56.8	32,609	25,657	25,657	20,738
	2 mos.	10.91	153,076	.....	157,800	8,201	14,198	481	50,610	13,500	86,990	55.1	70,810	57,281	57,281	50,444
Burlington-Rock Island	Feb.	280	55,643	2,721	63,251	12,465	11,013	4,083	36,212	8,948	72,721	115.0	—9,470	—16,118	—24,901	—22,890
	2 mos.	280	118,041	6,407	133,309	25,264	22,943	8,227	76,451	18,409	151,294	113.5	—17,985	—31,390	—47,876	—36,781
Cambria & Indiana	Feb.	37	93,571	.....	93,724	5,658	38,007	324	12,091	6,076	62,156	66.31	31,568	15,615	84,862	83,875
	2 mos.	37	195,723	.....	196,017	10,600	76,135	703	24,579	12,433	124,450	63.49	71,567	37,157	184,172	181,182
Canadian Pac. Lines in Maine	Feb.	233	195,003	12,140	219,398	27,841	44,742	9,151	81,284	5,911	169,594	77.3	49,804	43,804	20,466	17,868
	2 mos.	233	373,000	27,698	425,224	60,574	85,662	19,332	164,002	12,054	343,111	80.7	82,113	70,113	24,299	47,483
Canadian Pac. Lines in Vermont	Feb.	85	51,025	9,459	72,012	8,796	20,761	4,136	56,270	4,862	95,131	132.1	—23,119	—28,119	—45,008	—53,676
	2 mos.	85	97,732	19,634	141,416	21,501	42,361	8,662	116,517	10,092	199,756	141.2	—58,340	—68,340	—101,916	—87,885
Central of Georgia	Feb.	1,926	840,763	118,017	1,101,260	125,667	228,718	52,197	466,226	95,164	975,616	88.6	125,644	52,543	15,337	87,018
	2 mos.	1,926	1,693,928	232,896	2,204,339	254,554	477,331	103,012	948,253	192,057	1,988,966	90.2	215,373	69,043	—564	130,035
Central New Jersey	Feb.	684	1,795,358	320,815	2,251,934	144,848	495,301	41,932	998,694	120,161	1,815,826	80.6	436,108	232,739	98,733	490,157
	2 mos.	686	3,791,549	648,384	4,721,065	322,391	1,009,510	82,063	2,084,625	268,094	3,797,511	80.4	923,554	544,674	288,754	1,164,371
Central Vermont	Feb.	455	315,232	36,603	389,812	41,406	96,707	12,154	193,947	20,623	364,879	93.6	24,933	8,985	—409	—27,516
	2 mos.	455	620,570	78,253	774,657	97,379	200,222	25,902	412,822	42,317	778,726	100.5	—4,069	—35,925	—55,227	—23,452
Chesapeake & Ohio	Feb.	3,115	8,325,434	176,405	8,795,960	1,094,052	1,565,019	172,508	1,998,191	275,451	5,115,527	58.2	3,680,433	2,814,856	2,889,708	2,789,951
	2 mos.	3,115	16,419,952	396,176	17,397,661	1,984,125	3,218,804	362,815	4,086,961	574,418	10,250,104	58.9	7,147,557	5,420,584	5,550,352	5,469,219
Chicago & Eastern Illinois	Feb.	938	886,532	77,485	1,088,583	120,468	173,202	51,150	424,020	53,461	827,362	76.0	261,221	186,155	64,836	—36,826
	2 mos.	938	1,800,765	168,958	2,217,185	246,487	363,780	102,463	885,009	110,671	1,721,090	77.6	496,095	345,938	104,150	—77,925
Chicago & Illinois Midland	Feb.	131	302,617	1,000	309,405	28,217	56,551	15,908	75,627	23,040	199,343	64.4	110,062	94,631	98,171	59,952
	2 mos.	131	569,235	2,114	583,334	62,068	122,524	31,976	152,635	43,381	412,584	70.7	170,750	146,794	155,329	139,026
Chicago & North Western	Feb.	8,428	3,989,800	650,039	5,202,423	475,742	1,198,838	149,388	2,270,918	354,796	4,474,121	86.0	728,302	216,932	—52,427	168,005
	2 mos.	8,428	8,119,176	1,355,547	10,706,922	999,424	2,390,071	314,735	4,772,290	733,403	9,273,964	86.6	1,432,958	409,596	—109,444	588,489
Chicago, Burlington & Quincy	Feb.	9,036	4,529,745	444,175	5,603,438	516,175	1,225,934	177,411	2,261,417	390,924	4,625,513	82.5	977,925	441,324	169,073	814,042
	2 mos.	9,036	9,415,668	964,527	11,679,106	1,041,908	2,572,680	367,196	4,766,362	804,617	9,668,942	82.8	2,010,164	932,224	367,301	1,723,205
Chicago Great Western	Feb.	1,511	974,613	35,608	1,096,641	172,854	195,180	51,438	484,251	66,041	970,303	88.5	126,338	70,456	—91,116	—31,406
	2 mos.	1,511	1,981,447	82,237	2,240,532	360,018	385,022	107,251	1,020,286	139,955	2,009,467	89.7	231,065	118,494	—216,225	—42,108
Chicago, Indianapolis & Louisville	Feb.	647	476,234	35,192	576,285	45,896	142,922	24,384	268,291	38,223	525,505	91.2	50,780	25,936	—65,794	—48,385
	2 mos.	647	985,438	80,497	1,202,952	93,811	278,823	48,096	550,382	79,563	1,062,857	88.4	140,095	90,177	—94,612	—63,596

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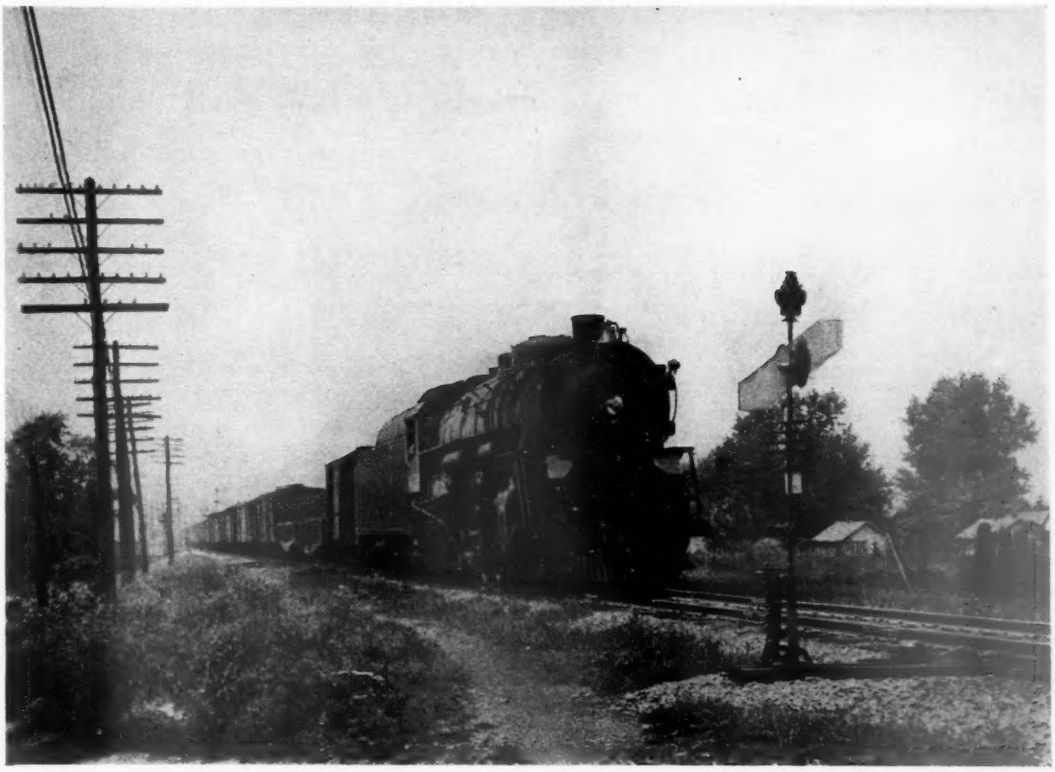

OPPORTUNITY

Do you realize the possibility of improvement in operating results which new and carefully planned steam locomotives offer?

Lima has valuable information which is at your service.

LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

LIMA LOCOMOTIVE WORKS INCORPORATED

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1935—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1934
Chicago, Mil., St. Paul & Pacific	Feb.	11,128	$5,328,578	$350,020	$6,295,968	$649,928	$1,394,362	$202,467	$2,722,234	$389,003	$5,389,299	85.6	$906,669	$361,058	—$32,790	$264,090
	2 mos.	11,144	10,932,760	765,584	13,014,038	1,394,355	2,891,253	400,492	5,745,828	815,170	11,330,480	87.1	1,683,549	594,892	—229,197	687,802
Chicago, Rock Island & Pacific	Feb.	7,576	3,591,345	450,905	4,559,311	469,804	1,107,267	175,111	2,154,129	393,516	4,362,864	95.7	196,447	—177,929	—464,927	—6,481
	2 mos.	7,576	7,292,248	956,147	9,285,906	956,195	2,206,072	358,844	4,481,427	787,965	8,914,858	96.0	371,048	—376,714	—948,266	153,779
Chicago, Rock Island & Gulf	Feb.	722	256,222	23,434	288,723	36,727	28,768	16,050	105,816	29,063	218,827	75.8	69,896	51,985	—8,853	—31,920
	2 mos.	722	508'985	48,012	573,138	76,213	56,870	32,693	227,285	54,840	450,366	78.6	122,772	86,987	—27,452	—28,252
Chi., St. Paul, Minn. & Omaha	Feb.	1,654	857,702	114,755	1,048,142	98,797	143,673	28,119	559,612	83,102	921,333	87.9	126,809	52,870	—22,691	47,531
	2 mos.	1,654	1,783,014	244,295	2,188,310	229,725	294,869	58,298	1,230,824	171,662	2,003,196	91.5	185,114	26,245	—110,857	136,499
Clinchfield R. R.	Feb.	309	431,672	3,062	439,432	37,666	104,622	15,631	87,823	12,313	258,055	58.7	181,377	143,377	167,393	251,751
	2 mos.	309	874,385	6,393	890,206	74,561	202,788	31,657	180,984	24,906	514,896	57.8	375,310	299,310	349,110	451,909
Colorado & Southern	Feb.	1,019	344,239	19,079	403,338	58,857	85,101	11,236	169,864	40,216	366,363	90.8	36,975	—17,580	—30,979	—35,881
	2 mos.	1,019	697,227	41,842	824,368	96,611	179,618	23,914	360,396	82,910	746,163	90.5	78,205	—31,022	—58,672	—34,112
Ft. Worth & Denver City	Feb.	804	264,111	27,670	346,022	32,623	69,485	15,281	143,234	38,720	301,211	87.0	44,811	16,534	—10,080	70,146
	2 mos.	804	563,608	61,504	738,280	67,259	147,681	31,782	296,562	77,290	625,643	84.7	112,637	53,662	—687	159,578
Columbus & Greenville	Feb.	167	50,961	4,783	60,845	14,124	11,936	3,098	29,075	9,139	67,372	110.7	—6,527	—9,262	—6,454	169
	2 mos.	167	105,127	11,414	126,593	29,696	26,172	6,838	62,690	18,892	144,288	114.0	—17,695	—24,116	—20,085	3,068
Delaware & Hudson	Feb.	835	1,713,606	85,083	1,870,043	241,348	508,300	46,649	758,011	177,572	1,738,670	93.0	131,373	43,412	77,661	215,635
	2 mos.	835	3,550,111	189,944	3,890,217	536,249	1,061,436	94,069	1,557,431	363,582	3,626,172	93.2	264,045	88,091	149,386	452,529
Delaware, Lackawanna & Western	Feb.	992	2,671,251	507,253	3,531,690	246,471	774,513	107,075	1,692,452	148,718	2,984,938	84.5	546,752	195,691	204,933	272,792
	2 mos.	992	5,490,735	1,062,037	7,299,674	497,910	1,529,486	215,973	3,496,694	307,325	6,079,301	83.3	1,220,373	518,384	520,945	377,557
Denver & Rio Grande Western	Feb.	2,601	1,149,286	62,574	1,295,791	86,953	326,746	43,992	470,028	102,192	1,035,443	79.9	260,348	110,176	78,018	80,525
	2 mos.	2,618	2,508,533	144,193	2,819,601	190,300	668,771	99,154	1,013,829	211,360	2,193,830	77.8	625,771	315,328	239,582	386,292
Denver & Salt Lake	Feb.	232	118,729	3,517	131,752	10,633	27,448	1,632	29,899	9,929	75,489	57.3	56,263	42,263	82,607	16,129
	2 mos.	232	269,794	7,631	297,422	20,139	54,850	3,206	68,656	19,955	159,591	53.7	137,831	109,831	187,668	60,655
Detroit & Mackinac	Feb.	242	31,822	1,947	38,343	6,852	7,339	943	19,947	4,042	39,122	102.0	—779	—3,064	—5,518	—8,851
	2 mos.	242	60,803	5,644	75,707	13,683	15,188	1,803	41,825	8,061	80,567	106.4	—4,860	—9,514	—13,616	—13,995
Detroit & Toledo Shore Line	Feb.	50	349,346	.....	352,159	17,000	24,426	6,898	81,184	9,562	139,102	39.5	213,057	180,406	121,417	113,640
	2 mos.	50	701,710	.....	707,214	33,422	49,235	13,940	164,019	18,655	279,303	39.5	427,911	361,527	246,886	213,398
Detroit, Toledo & Ironton	Feb.	472	980,013	338	1,017,555	89,767	105,601	10,847	171,424	25,233	401,121	39.4	616,434	544,589	459,589	233,475
	2 mos.	472	1,755,965	666	1,824,508	145,396	197,026	22,075	323,778	50,628	732,952	40.2	1,091,556	941,774	809,497	468,210
Duluth, Missabe & Northern	Feb.	560	59,533	2,567	78,600	87,150	168,078	3,517	118,236	49,679	426,660	542.8	—348,060	—365,919	—360,567	—414,640
	2 mos.	560	112,712	4,499	149,799	189,235	334,141	6,386	251,986	98,204	879,940	587.4	—730,141	—778,859	—778,329	—806,701
Duluth, Winnipeg & Pacific	Feb.	178	80,932	1,331	84,396	14,075	15,653	1,667	39,733	3,958	75,086	89.0	9,310	5,088	—5,470	2,397
	2 mos.	178	152,559	3,586	161,053	31,110	32,020	3,352	83,956	7,661	158,099	98.2	2,954	—5,122	—16,126	3,876
Elgin, Joliet & Eastern	Feb.	446	1,082,297	4	1,193,607	79,104	238,029	12,987	409,993	61,638	801,751	67.2	391,856	314,503	292,483	—22,372
	2 mos.	446	2,058,529	4	2,270,408	162,764	458,142	25,978	814,877	123,492	1,585,253	69.8	685,155	530,393	467,893	—71,753
Erie Railroad	Feb.	2,304	4,894,733	370,508	5,683,651	420,346	1,141,960	159,157	2,195,192	286,319	4,204,533	74.0	1,479,118	1,144,314	899,426	892,642
	2 mos.	2,304	10,011,913	786,447	11,645,377	857,981	2,376,344	325,036	4,539,506	572,792	8,684,054	74.6	2,961,323	2,291,327	1,784,634	1,986,759
New Jersey & New York	Feb.	45	15,024	46,849	63,427	5,141	27,390	1,090	46,403	2,867	82,891	130.7	—19,464	—23,615	—38,851	—30,469
	2 mos.	45	30,647	98,459	132,315	10,339	52,655	2,501	97,015	5,826	186,336	127.2	—36,021	—44,322	—76,276	—68,347
N. Y., Susquehanna & Western	Feb.	215	270,303	23,114	310,012	21,866	60,008	4,562	133,130	12,653	232,219	74.9	77,793	55,393	15,176	55,409
	2 mos.	215	573,387	49,097	658,247	44,429	119,311	9,407	279,080	24,889	477,116	72.5	181,131	135,167	60,703	97,735
Florida East Coast	Feb.	811	463,975	396,510	991,436	136,319	133,887	21,543	319,522	53,076	683,930	69.0	307,506	232,411	196,594	307,599
	2 mos.	811	819,033	654,643	1,717,908	254,666	271,180	45,830	577,398	106,892	1,292,993	75.3	424,915	274,701	197,041	488,800
Fort Smith & Western	Feb.	249	48,359	717	52,200	13,956	9,631	5,379	18,276	3,837	51,228	98.1	872	—1,028	—5,913	—1,077
	2 mos.	249	111,436	1,468	120,162	28,916	20,333	10,868	38,130	7,850	106,395	88.5	13,767	9,767	—385	3,238
Georgia R. R.	Feb.	329	206,435	9,359	237,867	23,809	50,968	15,920	108,692	11,633	211,373	88.9	26,494	21,154	32,150	48,892
	2 mos.	329	404,930	22,362	470,597	45,626	102,319	32,420	219,901	23,605	424,591	90.2	46,006	35,324	57,453	89,446
Georgia & Florida	Feb.	408	70,051	1,562	75,189	16,951	15,459	7,195	30,503	7,396	77,504	103.1	—2,315	—6,903	—9,185	—4,427
	2 mos.	408	133,732	3,467	144,409	32,656	30,359	15,076	62,054	14,759	154,904	107.3	—10,495	—19,671	—23,962	—13,194
Grand Trunk Western	Feb.	1,006	1,406,781	58,999	1,570,273	152,231	343,954	31,090	692,027	78,955	1,301,466	82.9	268,807	192,080	47,707	77,516
	2 mos.	1,006	2,772,858	126,082	3,112,266	301,406	691,782	62,383	1,366,668	159,641	2,588,604	83.2	523,662	369,880	104,939	40,864
Canadian Nat'l Lines in New Eng.	Feb.	172	85,536	5,717	98,921	18,080	20,083	2,395	57,908	8,532	107,757	108.8	—8,836	—20,133	—57,841	—76,266
	2 mos.	172	162,281	11,387	190,441	43,770	41,441	4,787	124,451	17,750	233,654	122.7	—43,213	—65,810	—140,960	—162,098
Great Northern	Feb.	8,328	3,757,468	257,544	4,400,782	402,981	931,017	142,280	1,869,321	266,402	3,629,251	82.5	771,531	233,004	79,907	156,300
	2 mos.	8,328	7,384,908	582,605	8,765,353	891,645	1,859,929	299,097	3,958,706	562,881	7,645,137	87.2	1,120,216	26,028	—284,841	—59,534
Green Bay & Western	Feb.	234	105,129	894	109,459	20,800	14,857	5,666	41,457	5,346	88,126	80.5	21,333	15,795	12,407	5,291
	2 mos.	234	208,255	2,268	217,626	39,333	29,556	11,350	91,816	11,102	183,157	84.1	34,469	23,390	20,152	—632
Gulf & Ship Island	Feb.	259	76,183	5,960	99,241	12,958	14,061	2,964	46,760	5,064	82,436	83.1	16,805	2,448	—3,576	—8,836
	2 mos.	259	136,067	12,787	177,660	27,148	27,092	6,352	96,420	11,441	169,217	95.2	8,443	—20,007	—33,921	—26,052

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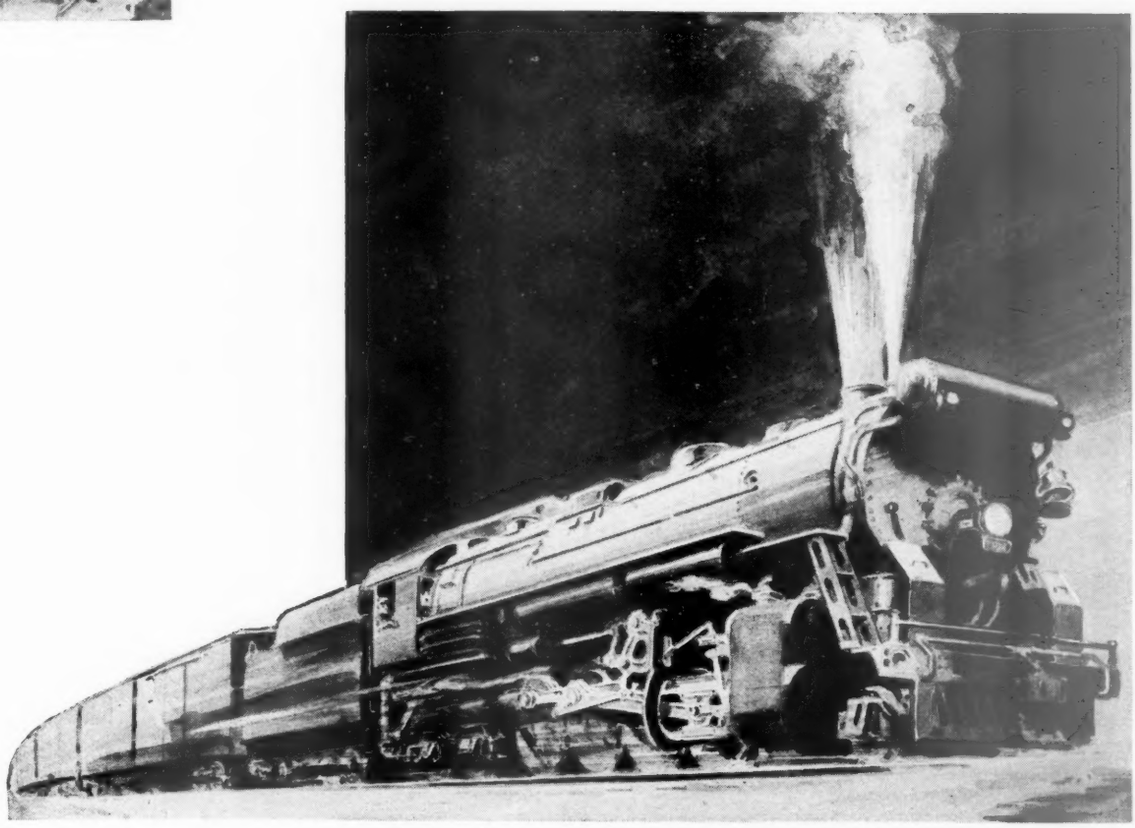
EXCESS TONNAGE AND EXCESS CAPACITY

are expensive and uneconomical



Excess locomotive weight increases the first cost of the locomotive, and, infinitely more expensive, this weight must be hauled around for the life of the locomotive though it may not be actually needed more than 5% of the operating time.

Excess main cylinder capacity, just to provide higher tractive effort for starting, is equally uneconomic in operating costs.

Utilization of The Locomotive Booster to provide increased starting effort and increased pull over the hard spots avoids both excess weight and excess cylinder size both of which incur higher fuel and wage costs.

Application of The Booster puts the locomotive into the next higher class so far as capacity is concerned, but the operating and maintaining cost of the lower class prevails. The Booster capitalizes idle weight and spare steam.

No locomotive device is better than the replacement part used for maintenance. Genuine Franklin repair parts assure accuracy of fit and reliability of performance.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1935—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1934
Gulf Mobile & Northern	Feb.	961	$367,465	$14,825	$400,287	$53,750	$69,334	$29,326	$131,118	$31,396	$315,124	78.72	$85,163	$55,149	$14,983	$2,359
	2 mos.	961	750,208	31,982	817,990	110,417	143,574	62,089	282,280	63,726	662,486	80.99	155,504	95,283	13,752	43,748
Illinois Central	Feb.	4,973	5,406,412	663,163	6,556,660	522,429	1,569,128	197,025	2,541,358	317,235	5,192,284	79.2	1,364,376	913,579	953,091	1,081,211
	2 mos.	4,973	10,939,871	1,393,516	13,315,152	1,070,989	3,211,392	421,504	5,307,482	653,335	10,758,094	80.8	2,557,058	1,671,961	1,626,294	1,954,155
Yazoo & Mississippi Valley	Feb.	1,635	714,370	50,388	828,873	78,952	174,784	29,108	370,658	47,426	701,978	84.7	126,895	9,693	—57,269	51,191
	2 mos.	1,635	1,440,519	110,627	1,689,478	161,160	350,640	62,854	793,356	100,185	1,468,585	86.9	220,893	—12,325	—155,132	61,317
Illinois Central System	Feb.	6,609	6,120,782	713,551	7,385,533	601,381	1,743,912	226,133	2,912,016	364,661	5,894,262	79.8	1,491,271	919,754	903,109	1,141,736
	2 mos.	6,609	12,380,390	1,504,143	15,004,630	1,232,149	3,562,032	484,358	6,100,838	753,520	12,226,679	81.5	2,777,951	1,654,118	1,487,949	2,034,806
Illinois Terminal	Feb.	525	303,941	56,538	394,935	35,300	61,394	14,856	141,867	21,359	276,238	69.95	118,697	92,997	76,911	50,956
	2 mos.	525	616,347	114,234	799,382	72,862	126,327	29,616	300,245	44,233	576,437	72.11	222,945	171,436	138,800	121,995
Kansas City Southern	Feb.	878	606,450	15,000	705,967	68,530	132,191	47,319	242,723	80,979	571,414	80.9	134,553	74,057	47,826	71,459
	2 mos.	878	1,242,095	32,183	1,446,624	142,598	276,734	96,339	514,474	163,625	1,195,745	82.7	250,879	120,152	64,223	165,648
Kansas, Oklahoma & Gulf	Feb.	326	140,164	360	142,809	8,068	20,994	7,532	33,816	9,266	79,560	55.7	63,249	50,545	36,810	51,863
	2 mos.	326	303,871	773	309,419	15,456	40,407	14,447	72,025	19,150	161,024	52.0	148,395	122,981	94,783	100,305
Lake Superior & Ishpeming	Feb.	160	29,792	141	31,272	17,215	24,309	651	19,163	7,325	68,663	219.6	—37,391	—50,615	—52,431	—46,749
	2 mos.	160	63,758	240	67,046	37,943	50,142	1,302	40,257	14,761	144,405	215.4	—77,359	—103,805	—107,545	—98,877
Lehigh & Hudson River	Feb.	96	122,259	116	123,259	9,217	19,983	3,173	42,368	10,523	85,264	69.2	37,995	26,821	14,391	7,192
	2 mos.	96	250,377	263	256,220	20,337	41,501	6,299	87,648	18,840	174,625	68.2	81,595	58,258	33,157	24,598
Lehigh & New England	Feb.	220	250,109	268	251,971	30,776	57,807	5,282	97,699	18,820	210,384	83.5	41,587	33,062	45,974	112,159
	2 mos.	220	547,198	560	550,935	57,740	114,025	10,979	203,398	39,174	425,315	77.2	125,620	103,708	121,903	199,157
Lehigh Valley	Feb.	1,354	2,980,904	197,714	3,391,808	183,657	594,424	109,047	1,548,309	129,613	2,579,772	76.1	812,036	613,490	432,607	644,325
	2 mos.	1,354	6,097,817	401,422	6,945,050	377,372	1,224,938	216,094	3,116,110	267,136	5,231,730	75.3	1,713,320	1,366,766	1,036,674	1,265,127
Louisiana & Arkansas	Feb.	608	305,869	7,373	333,630	38,750	61,873	23,646	85,355	24,430	232,393	69.7	101,237	70,171	63,533	73,003
	2 mos.	608	601,710	15,870	664,603	82,533	118,524	46,069	175,225	47,521	467,481	70.3	197,122	131,317	116,257	157,939
Louisiana, Arkansas & Texas	Feb.	255	69,359	169	71,778	18,626	9,387	5,193	24,633	5,528	63,367	88.3	8,411	5,904	—4,424	887
	2 mos.	255	139,359	420	144,491	36,903	17,652	9,804	50,773	11,261	126,393	87.3	18,098	13,071	—10,071	2,304
Louisville & Nashville	Feb.	5,051	4,908,983	461,460	5,816,713	629,718	1,343,603	168,470	2,102,525	270,547	4,554,439	78.3	1,262,274	930,572	971,995	1,369,421
	2 mos.	5,051	10,028,512	966,586	11,932,762	1,308,643	2,687,838	355,291	4,363,341	549,452	9,347,431	78.3	2,585,331	1,921,467	1,999,231	2,779,364
Maine Central	Feb.	1,046	929,337	84,257	1,089,501	155,981	165,045	8,638	415,209	36,138	781,080	71.7	308,421	259,648	159,213	—15,225
	2 mos.	1,046	1,664,165	171,603	1,994,899	365,342	324,476	17,981	838,321	76,195	1,622,287	81.3	372,612	275,339	135,723	42,036
Midland Valley	Feb.	361	97,172	.....	99,213	9,352	9,608	2,451	27,096	7,601	56,095	56.5	43,118	35,637	26,784	26,474
	2 mos.	361	216,089	11	219,965	18,784	16,913	4,704	58,126	15,670	114,064	51.9	105,901	90,927	70,060	57,945
Minneapolis & St. Louis	Feb.	1,647	456,111	11,517	504,717	27,610	119,606	25,455	284,729	35,915	493,138	97.7	11,579	—10,471	—40,747	—19,122
	2 mos.	1,647	932,162	26,386	1,031,801	90,763	245,675	49,270	605,250	79,107	1,069,189	103.6	—37,388	—81,492	—137,040	—21,613
Minn., St. Paul & S. S. Marie	Feb.	4,297	1,171,467	63,863	1,355,343	228,720	333,027	54,517	750,934	133,484	1,502,657	110.9	—147,314	—221,054	—326,817	—116,362
	2 mos.	4,297	2,480,783	133,161	2,863,279	478,804	643,064	111,268	1,615,413	280,767	3,135,997	109.5	—272,718	—470,788	—660,469	—346,897
Duluth, South Shore & Atlantic	Feb.	556	126,831	9,095	147,332	24,419	30,563	4,227	72,784	8,889	140,677	95.5	6,655	—2,803	—11,277	—24,713
	2 mos.	556	236,737	18,623	277,301	50,160	62,209	9,038	152,259	18,311	291,613	105.2	—14,312	—34,077	—51,333	—67,794
Spokane International	Feb.	163	29,892	1,492	35,917	5,650	5,401	1,884	17,542	5,096	35,573	99.0	344	—2,563	—5,115	—9,760
	2 mos.	163	54,811	4,423	68,708	13,485	11,220	3,646	37,551	10,628	76,530	111.4	—7,822	—13,633	—17,866	—18,669
Mississippi Central	Feb.	150	42,689	1,238	45,899	7,169	10,444	6,898	16,800	6,588	47,899	104.4	—2,000	—4,793	—7,375	746
	2 mos.	150	89,658	2,961	96,436	14,334	22,133	13,704	34,525	13,492	98,188	101.8	—1,752	—7,327	—11,894	—3,487
Missouri & North Arkansas	Feb.	364	59,424	844	65,831	15,783	7,750	3,527	25,359	6,271	48,690	89.2	7,141	5,538	—2,847	—4,406
	2 mos.	364	117,349	2,009	131,050	30,526	16,363	7,355	51,424	12,171	117,839	89.9	13,211	10,041	—6,714	—3,244
Missouri-Illinois	Feb.	208	73,358	655	75,928	12,727	9,102	2,798	26,472	6,561	57,011	75.1	18,917	13,017	4,533	5,361
	2 mos.	208	150,876	1,362	155,854	26,488	21,779	5,434	55,538	13,448	122,031	78.3	33,823	22,623	8,564	12,492
Missouri-Kansas-Texas Lines	Feb.	3,293	1,435,471	132,117	1,779,812	255,343	343,415	101,017	745,489	145,480	1,605,229	90.2	174,583	8,084	—159,238	—2,766
	2 mos.	3,293	2,982,012	297,050	3,726,331	523,825	883,710	212,249	1,553,994	302,972	3,508,724	94.2	217,607	—118,743	—473,475	34,248
Missouri Pacific	Feb.	7,235	4,623,400	305,833	5,449,635	671,956	1,216,055	214,896	2,122,820	353,281	4,607,909	84.6	841,726	515,991	172,990	559,079
	2 mos.	7,235	9,504,326	641,235	11,184,510	1,340,699	2,474,247	448,241	4,460,020	733,956	9,512,594	85.1	1,671,916	1,018,688	273,999	1,116,283
Gulf Coast Lines	Feb.	1,763	760,687	31,433	860,085	107,760	150,433	42,550	265,503	59,857	627,090	72.91	232,995	186,839	79,669	139,240
	2 mos.	1,763	1,721,031	62,475	1,912,523	220,459	296,996	84,748	546,224	124,836	1,274,132	66.62	638,391	544,341	311,543	321,447
International-Great Northern	Feb.	1,154	766,981	58,237	940,224	119,314	168,535	28,826	365,924	62,070	755,362	80.34	184,862	149,794	55,104	124,413
	2 mos.	1,154	1,570,963	113,959	1,915,947	254,701	341,517	57,231	751,438	125,426	1,554,263	81.12	361,684	292,814	88,126	179,556
San Antonio, Uvalde & Gulf	Feb.	316	48,261	2,284	58,767	16,170	9,575	4,553	26,198	5,829	62,318	106.0	—3,551	—7,215	—27,505	22,975
	2 mos.	316	115,484	5,574	137,842	32,572	20,385	9,074	56,585	12,179	130,283	94.5	7,559	255	—41,817	33,506
Mobile & Ohio	Feb.	1,201	576,970	20,422	637,044	126,163	105,172	31,557	262,672	53,332	580,072	91.1	56,972	25,294	—31,479	190
	2 mos.	1,201	1,118,256	45,472	1,245,745	214,109	257,574	72,921	543,197	108,268	1,197,977	96.2	47,768	—16,662	—127,987	5,671
Monongahela	Feb.	174	330,291	826	333,682	26,006	24,589	430	77,494	6,409	134,712	40.4	198,970	180,891	100,227	150,956
	2 mos.	174	654,084	1,593	661,508	51,220	55,140	868	158,532	13,280	278,824	42.1	382,684	346,520	177,901	245,015

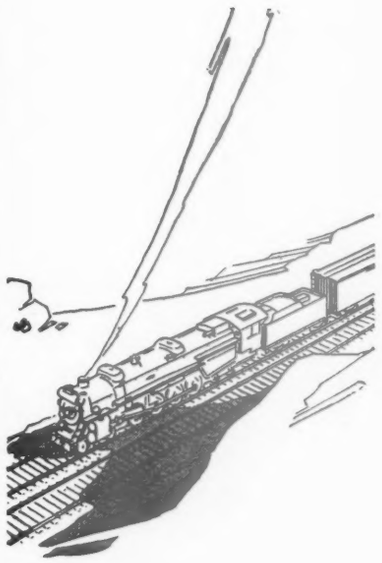
Continued on next left-hand page

SECURITY ARCHES *Mean* *Profitable Economy*

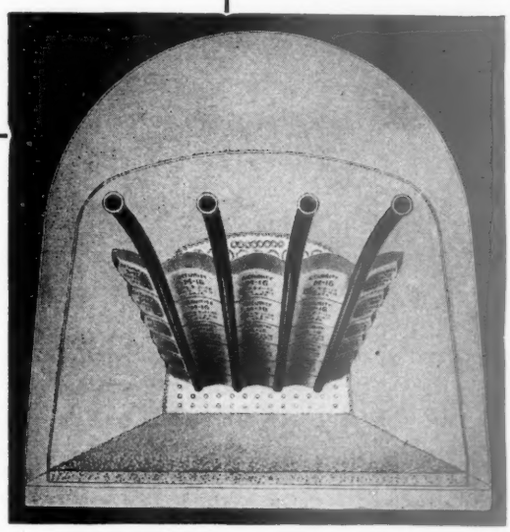
Since every Security Sectional Arch saves several times its cost in fuel, the Security Brick Arch is one of the most profitable economy means you can use.

Only by maintaining a complete Arch, however, can this full saving be continuously secured.

At every boiler wash period, be sure every course of The Security Arch is complete.



There's More to SECURITY ARCHES *Than Just Brick*



HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

NRA MEMBER U.S. WE DO OUR PART

AMERICAN ARCH CO.
INCORPORATED

Locomotive Combustion Specialists

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1935—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1934
Montour	Feb.	57	$141,880	.....	$142,743	$9,370	$33,379	$947	$37,636	$6,176	$87,508	61.3	$55,235	$42,447	$56,669	$52,826
	2 mos.	57	272,833	.....	275,038	17,238	63,694	1,845	73,498	12,564	168,839	61.3	106,199	80,367	114,803	76,150
Nashville, Chattanooga & St. Louis	Feb.	1,191	752,169	$65,725	932,159	122,420	234,375	57,550	509,908	56,917	886,504	95.1	45,655	9,813	—1,880	121,897
	2 mos.	1,191	1,534,221	184,234	1,966,340	246,088	490,146	121,754	837,009	110,717	1,817,484	92.4	148,856	77,517	9,991	281,801
Nevada Northern	Feb.	165	23,898	874	29,080	8,404	2,730	634	7,890	4,093	23,751	87.1	5,329	—1,260	2,736	1,889
	2 mos.	165	42,451	1,759	52,873	17,607	6,203	1,306	15,893	8,504	49,513	93.6	3,360	—9,819	—1,890	681
New York Central	Feb.	11,392	17,203,683	4,194,007	24,038,547	2,085,715	5,228,506	495,983	9,377,771	1,001,942	18,545,307	77.1	5,493,240	3,404,335	2,064,213	1,365,873
	2 mos.	11,392	34,855,023	9,248,252	49,545,160	4,473,858	10,404,397	1,004,007	19,388,113	2,018,252	38,060,037	76.8	11,485,123	7,251,458	4,565,408	3,820,110
Pittsburgh & Lake Erie	Feb.	233	1,180,254	46,849	1,268,750	83,803	401,847	24,707	429,857	64,784	1,012,468	79.8	256,282	150,957	302,959	217,143
	2 mos.	233	2,278,556	94,787	2,451,566	168,067	763,709	50,934	878,972	130,957	2,007,596	81.9	443,970	242,106	550,180	399,407
New York, Chicago & St. Louis	Feb.	1,691	2,520,757	49,558	2,655,511	186,745	419,553	102,712	951,399	120,758	1,781,549	67.1	873,962	730,078	498,722	606,542
	2 mos.	1,691	5,172,654	116,727	5,469,235	408,915	839,531	206,574	1,985,356	244,483	3,691,469	67.5	1,777,766	1,490,014	1,002,890	1,124,921
N. Y., New Haven & Hartford	Feb.	2,068	3,188,354	1,808,033	5,636,587	582,411	860,994	67,772	2,208,158	210,116	4,078,666	72.4	1,557,921	1,207,769	679,385	163,607
	2 mos.	2,068	6,358,645	3,708,189	11,364,566	1,310,724	1,731,378	142,637	4,527,629	450,717	8,465,701	74.5	2,898,865	2,198,090	1,136,898	887,828
New York Connecting	Feb.	20	235,732	.....	244,052	21,737	5,544	.....	29,206	1,049	57,536	23.6	186,516	151,316	131,301	101,245
	2 mos.	20	454,022	.....	468,753	29,819	11,710	.....	58,796	2,092	102,417	21.8	366,336	297,836	241,407	251,762
New York, Ontario & Western	Feb.	567	650,820	10,030	721,800	56,785	134,092	10,369	322,268	24,014	552,464	76.5	169,336	132,234	92,872	91,069
	2 mos.	567	1,473,973	17,009	1,612,430	121,477	268,856	20,295	704,148	48,671	1,173,880	72.8	438,550	360,943	250,190	260,447
Norfolk & Western	Feb.	2,168	5,746,113	114,869	6,052,734	699,310	1,185,164	101,596	1,417,914	289,886	3,705,129	61.2	2,347,605	1,659,495	1,824,542	1,903,763
	2 mos.	2,175	11,200,296	258,544	11,844,490	1,411,685	2,461,692	223,379	2,908,101	588,782	7,615,678	64.3	4,228,812	2,852,181	3,145,505	3,378,495
Norfolk Southern	Feb.	932	315,491	7,235	340,819	62,234	50,138	20,522	134,178	29,580	296,652	87.0	44,167	19,248	—2,548	7,092
	2 mos.	932	621,331	16,288	673,919	121,283	103,473	41,869	273,029	59,471	599,125	88.9	74,794	23,974	—19,830	12,949
Northern Pacific	Feb.	6,722	2,785,631	207,686	3,343,353	334,615	925,458	137,007	1,525,417	326,889	3,303,410	98.8	39,943	—398,946	—88,961	133,642
	2 mos.	6,722	5,673,521	467,244	6,872,424	766,333	1,887,519	273,259	3,337,022	696,409	7,078,035	103.0	—205,611	—1,081,572	—463,694	263,034
Northwestern Pacific	Feb.	375	117,579	61,603	205,185	29,853	55,176	3,027	131,428	14,290	233,746	113.9	—28,561	—43,731	—51,011	—48,921
	2 mos.	375	223,213	125,931	406,698	66,518	102,645	7,483	272,581	28,464	477,007	117.3	—70,309	—100,786	—114,962	—85,568
Oklahoma City-Ada-Atoka	Feb.	132	35,854	306	38,135	8,664	862	882	10,328	2,039	22,775	59.7	15,360	12,729	5,729	—2,870
	2 mos.	132	70,137	630	75,168	12,442	1,907	1,539	21,136	3,995	41,019	54.6	34,149	28,875	14,412	—1,871
Pennsylvania Railroad	Feb.	10,470	20,742,705	4,746,810	27,981,768	2,245,942	5,555,386	563,403	10,628,653	1,966,272	21,317,514	76.2	6,664,254	5,030,854	4,293,645	4,241,657
	2 mos.	10,470	41,615,219	10,280,511	57,031,055	4,812,467	11,469,618	1,169,048	21,651,830	3,962,207	43,828,655	76.9	13,202,400	9,961,682	8,533,061	9,049,917
Long Island	Feb.	396	478,796	1,206,046	1,767,774	189,452	314,556	12,304	910,840	90,514	1,517,662	85.9	250,112	126,412	—45,537	—76,093
	2 mos.	396	958,565	2,451,836	3,579,030	500,815	655,406	23,897	1,886,130	180,917	3,247,164	90.7	331,866	83,474	—249,209	141,299
Pennsylvania-Reading Seashore Lines	Feb.	413	236,755	108,414	366,984	56,310	94,617	6,788	255,225	33,712	448,059	122.1	—81,075	—145,830	—201,488	—215,833
	2 mos.	413	466,840	201,220	707,705	156,373	177,699	13,466	536,116	71,980	957,629	135.3	—249,924	—379,439	—507,946	—400,525
Pere Marquette	Feb.	2,129	2,063,501	50,060	2,202,750	209,383	485,559	58,246	824,684	87,523	1,668,911	75.8	533,839	427,507	419,067	415,048
	2 mos.	2,129	4,170,694	114,697	4,471,238	429,204	958,421	119,129	1,673,683	176,386	3,363,681	75.2	1,107,557	893,717	735,556	622,960
Pittsburg & Shawmut	Feb.	101	60,217	526	61,510	10,362	18,426	1,292	19,630	4,748	54,458	88.5	7,052	6,449	9,012	19,837
	2 mos.	101	120,193	1,083	122,904	20,047	37,784	2,754	39,760	9,865	110,210	89.7	12,694	11,506	18,257	35,597
Pittsburgh & West Virginia	Feb.	138	220,746	.....	233,515	18,049	55,802	12,159	50,401	16,433	163,764	70.1	69,751	53,945	79,859	77,091
	2 mos.	138	452,745	.....	476,675	36,384	110,154	25,055	102,965	32,933	328,265	68.9	148,410	115,454	160,190	136,249
Pittsburg, Shawmut & Northern	Feb.	190	73,293	148	75,078	11,949	18,884	1,212	33,475	7,906	73,426	97.8	1,652	—375	—6,299	10,778
	2 mos.	190	150,539	323	154,068	24,312	37,735	2,499	65,977	16,706	147,229	95.6	6,839	2,509	—10,148	17,446
Reading	Feb.	1,460	3,899,235	256,156	4,389,398	307,255	864,930	69,444	1,703,476	195,019	3,158,435	72.0	1,230,963	946,196	972,834	1,160,569
	2 mos.	1,460	7,966,302	541,622	8,996,091	636,162	1,744,341	147,187	3,537,147	488,330	6,588,879	73.2	2,407,212	1,843,104	1,860,677	2,587,269
Richmond, Fredericksburg & Potomac	Feb.	117	234,124	192,400	563,724	46,681	117,067	8,971	232,978	43,860	465,423	82.6	98,301	74,049	41,669	49,603
	2 mos.	117	470,701	387,047	1,091,969	95,023	244,139	16,896	466,723	89,573	940,896	86.2	151,073	102,570	42,611	96,606
Rutland	Feb.	407	155,920	35,364	238,490	33,661	49,819	9,701	130,413	14,049	237,129	99.4	1,361	—18,189	—13,790	—4,882
	2 mos.	407	318,945	73,706	490,468	78,307	113,228	20,512	274,258	28,273	514,064	104.8	—23,596	—62,351	—52,025	—34,483
St. Louis-San Francisco	Feb.	5,049	2,406,695	182,440	2,853,273	494,861	708,302	88,378	1,149,147	203,836	2,656,780	93.1	196,493	—48,683	—35,949	298,834
	2 mos.	5,049	4,919,193	401,297	5,880,782	1,008,985	1,509,214	187,105	2,383,655	420,693	5,526,438	94.0	354,344	—128,004	—122,267	707,118
Ft. Worth & Rio Grande	Feb.	233	21,241	915	27,750	10,565	7,708	2,389	20,895	4,538	46,093	166.1	—18,343	—22,351	—26,672	—25,839
	2 mos.	233	43,648	2,322	58,040	21,352	17,142	5,298	45,038	9,880	98,694	170.4	—40,654	—48,655	—57,961	—48,558
St. Louis, San Francisco & Texas	Feb.	261	57,717	384	62,086	25,458	13,050	4,575	34,095	8,603	85,774	138.2	—23,688	—27,426	—50,450	—29,447
	2 mos.	261	119,659	836	127,649	52,664	28,415	8,953	70,541	17,263	177,829	139.3	—50,180	—57,646	—106,143	—73,259
St. Louis Southwestern Lines	Feb.	1,786	1,151,390	13,708	1,215,204	129,310	158,538	69,693	405,582	57,986	826,685	68.0	388,519	317,373	180,170	100,570
	2 mos.	1,786	2,326,642	30,007	2,460,767	256,714	347,835	141,076	820,604	117,646	1,696,056	68.9	764,711	622,690	389,045	184,210
San Diego & Arizona Eastern	Feb.	155	34,611	4,472	39,697	10,508	7,634	1,808	17,785	4,310	42,635	107.4	—2,938	—5,432	—4,978	3,214
	2 mos.	155	65,717	8,349	75,967	20,853	16,034	4,106	36,024	9,127	87,300	114.9	—11,333	—16,163	—15,192	7,902
Seaboard Air Line	Feb.	4,307	2,081,212	400,873	2,821,777	405,897	551,691	137,161	1,064,372	189,852	2,392,637	84.8	429,140	178,568	76,233	380,514
	2 mos.	4,307	4,251,591	803,428	5,691,687	807,962	1,147,937	275,784	2,166,360	385,879	4,873,024	85.6	818,663	326,856	127,792	755,454

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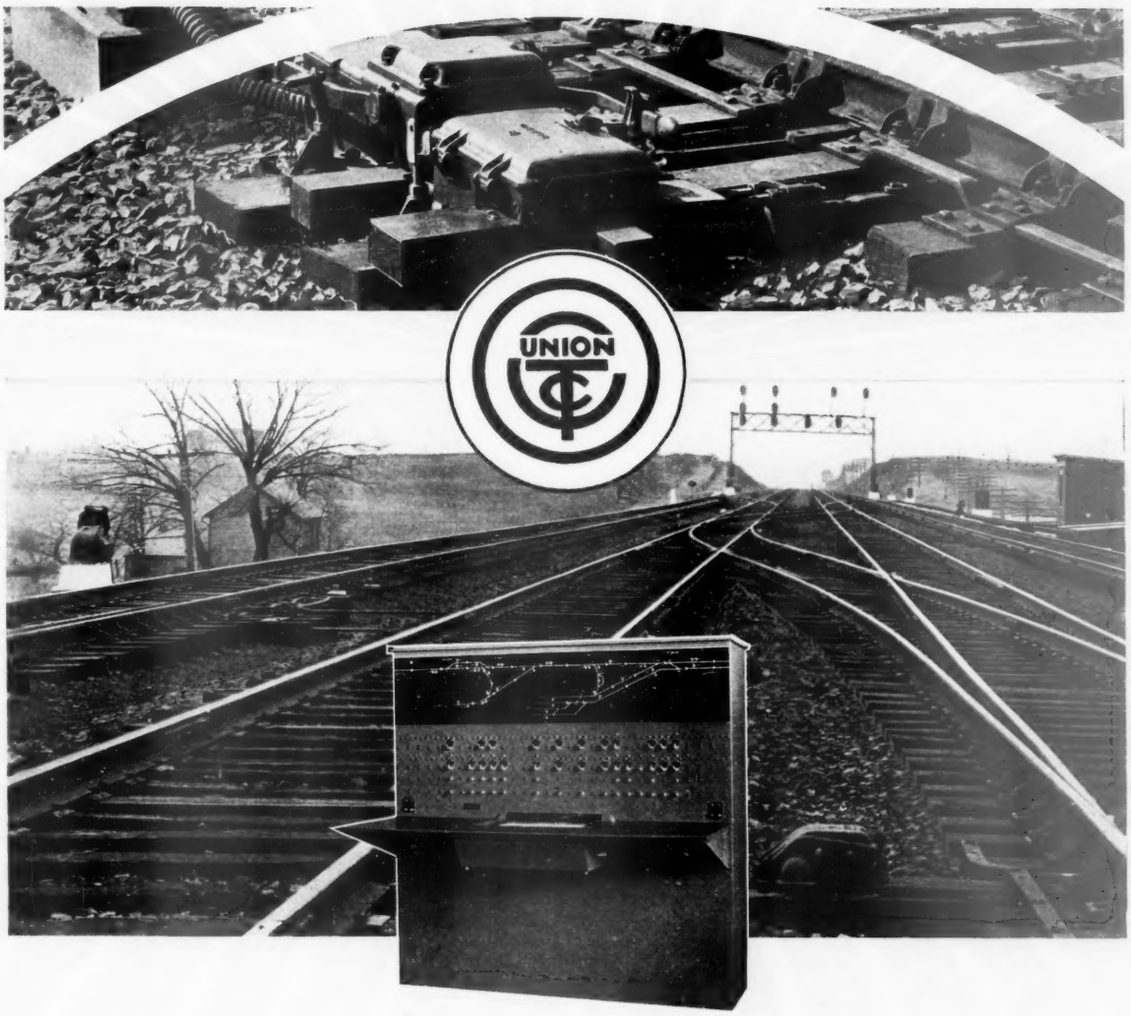

Applicable to a Single Switch or a Full Division.

THE "Union" Centralized Traffic Control System, which permits train operation by signal indication, without written train orders, may be applied to control a single outlying switch, or an interlocking; to control all signals and switches or only a portion of them, or to control signals only. The system may be applied to a short section with a particular operating problem or to a full division where the entire operation can be handled by signal indication.

Flexibility and adaptability to all operating conditions is but one of many features and advantages of the "Union" C. T. C. System. Our nearest district office will be glad to explain the others.

1881 **Union Switch & Signal Co.** 1935

SWISSVALE, PA.

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

Revenues and Expenses of Railways

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1935—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1934
Southern Ry.	Feb.	6,644	$5,066,004	$571,545	$6,201,929	$809,790	$1,172,356	$142,724	$2,334,924	$232,827	$4,733,632	76.3	$1,468,297	$1,025,384	$842,049	$1,337,523
	2 mos.	6,644	10,356,330	1,261,753	12,790,936	1,690,025	2,449,520	291,243	4,937,712	483,853	9,939,523	77.7	2,851,413	1,953,846	1,610,146	2,307,099
Alabama Great Southern	Feb.	315	289,360	32,606	351,565	76,324	93,893	10,411	128,083	13,923	325,321	92.5	26,244	—995	1,364	54,643
	2 mos.	315	596,712	73,684	732,412	157,699	195,833	21,314	267,278	28,861	676,422	92.4	55,990	827	2,242	119,477
Cinn., New Orleans & Texas Pacific	Feb.	336	849,378	66,817	975,032	158,285	187,794	24,444	262,318	37,392	675,210	69.2	299,822	238,133	209,021	324,924
	2 mos.	336	1,741,480	147,889	2,012,823	323,143	389,578	48,377	544,212	74,062	1,389,694	69.0	623,129	489,756	443,830	546,361
Georgia Southern & Florida	Feb.	397	88,806	31,014	136,906	26,343	32,764	1,624	61,955	2,282	127,487	93.1	9,419	—3,208	—6,741	19,685
	2 mos.	397	179,215	62,885	278,253	54,200	73,724	3,282	131,002	4,824	272,161	97.8	6,092	—19,325	—13,793	22,344
New Orleans & Northeastern	Feb.	204	138,887	13,986	166,166	23,969	33,703	5,384	58,923	8,118	131,583	79.2	34,583	11,877	—1,020	—10,715
	2 mos.	204	276,973	29,072	333,775	52,321	69,282	11,088	122,388	16,686	274,831	82.3	58,944	13,239	—13,506	—20,230
Northern Alabama	Feb.	99	47,407	1,311	50,194	9,371	1,118	1,087	16,148	1,575	29,299	58.4	20,895	17,184	4,947	8,710
	2 mos.	99	89,536	2,964	95,518	21,613	2,602	2,226	32,235	3,289	61,965	64.9	33,553	26,150	1,845	19,328
Southern Pacific	Feb.	8,790	6,380,507	1,245,239	8,373,387	748,260	1,499,867	262,574	3,160,883	528,986	6,375,231	76.1	1,998,156	1,225,049	936,233	190,646
	2 mos.	8,790	12,764,077	2,631,793	17,001,107	1,653,363	3,174,658	517,993	6,580,823	1,100,254	13,400,281	78.8	3,600,826	2,035,661	1,463,444	315,504
So. Pac. Steamship Lines	Feb.	....	349,350	8,245	373,280	10,911	88,785	14,877	300,473	18,135	433,181	116.0	—59,901	—61,127	—61,259	—76,484
	2 mos.	....	665,335	15,229	709,056	24,161	175,404	30,324	612,316	36,113	878,318	123.9	—169,262	—172,135	—172,399	—187,888
Texas & New Orleans	Feb.	4,443	2,035,509	202,304	2,549,491	337,707	511,060	114,006	944,774	197,820	2,123,670	83.3	425,821	199,938	12,033	—112,101
	2 mos.	4,443	4,169,231	418,608	5,220,955	705,616	1,040,914	225,836	1,944,282	405,138	4,361,462	83.5	859,493	404,264	12,777	—260,722
Spokane, Portland & Seattle	Feb.	552	278,387	24,801	334,456	38,331	55,774	5,343	122,311	19,621	241,627	72.2	92,829	40,459	30,224	61,281
	2 mos.	552	565,111	58,799	687,108	63,204	121,915	10,527	260,430	41,333	500,300	72.8	186,808	81,384	59,573	78,528
Tennessee Central	Feb.	286	167,957	3,843	181,474	29,824	24,350	4,658	66,940	12,959	138,721	76.4	42,753	39,650	26,942	35,520
	2 mos.	286	340,865	10,220	372,075	54,764	52,836	10,155	132,877	26,628	277,072	74.5	95,003	87,026	61,400	72,371
Texas & Pacific	Feb.	1,949	1,342,146	133,752	1,668,844	181,474	330,686	64,142	522,394	129,634	1,243,352	74.5	425,492	324,337	215,503	265,382
	2 mos.	1,949	2,747,066	287,376	3,434,273	383,991	655,414	132,009	1,100,873	266,550	2,572,845	74.9	861,428	658,925	457,612	591,045
Texas Mexican	Feb.	162	86,121	504	96,496	11,279	14,365	3,051	32,025	6,550	67,270	69.7	29,226	25,075	15,306	4,779
	2 mos.	162	214,477	848	236,406	23,504	28,461	6,349	66,993	13,440	138,414	58.5	97,992	89,735	72,314	2,462
Toledo, Peoria & Western	Feb.	239	118,147	11	120,213	26,101	6,582	13,693	34,174	9,096	89,646	74.6	30,567	25,757	14,339	4,240
	2 mos.	239	231,108	19	235,116	49,742	14,768	27,505	74,022	16,625	182,662	77.7	52,454	43,944	20,229	14,503
Union Pacific	Feb.	3,589	3,705,525	332,293	4,443,123	306,188	1,169,302	109,133	1,573,597	345,225	3,572,415	80.4	870,708	460,038	288,829	492,993
	2 mos.	3,610	7,736,485	745,417	9,330,187	626,253	2,408,458	227,936	3,358,952	712,457	7,477,791	80.1	1,852,396	1,031,324	639,890	1,283,001
Oregon Short Line	Feb.	2,504	1,351,356	75,501	1,539,856	115,462	309,514	29,577	536,698	115,294	1,123,148	72.9	416,708	194,623	111,367	165,964
	2 mos.	2,504	2,854,074	176,852	3,254,755	231,461	617,322	60,764	1,153,110	236,808	2,334,137	71.7	920,618	476,029	315,884	346,731
Oregon-Wash. R. R. & Nav. Co.	Feb.	2,293	898,335	76,667	1,087,137	131,140	180,772	44,357	449,652	106,326	918,515	84.5	168,622	43,284	—51,949	80,469
	2 mos.	2,293	1,795,624	173,769	2,192,280	257,809	358,698	92,317	951,722	213,933	1,887,712	86.1	304,568	54,176	—135,139	—28,371
Los Angeles & Salt Lake	Feb.	1,234	1,018,877	97,721	1,210,995	120,623	232,911	43,187	386,067	67,768	879,554	72.6	331,441	216,372	107,867	123,965
	2 mos.	1,234	2,093,977	229,064	2,515,788	244,637	459,338	91,916	800,138	137,591	1,793,731	71.3	722,057	491,650	274,780	197,114
St. Joseph & Grand Island	Feb.	258	190,641	1,620	198,215	32,972	21,054	2,224	65,917	14,447	137,657	69.4	60,558	48,181	25,667	54,319
	2 mos.	258	384,978	3,269	400,400	50,722	43,692	4,600	135,394	29,385	265,252	66.2	135,148	108,507	60,556	135,015
Utah	Feb.	111	77,034	.....	77,436	10,706	20,761	488	19,145	5,134	56,234	72.6	21,202	10,782	3,248	—9,373
	2 mos.	111	192,813	.....	193,897	23,450	45,140	1,001	46,763	10,987	127,341	65.7	66,556	40,537	25,079	1,891
Virginian	Feb.	619	1,282,675	2,785	1,343,307	92,093	222,942	17,467	235,923	42,063	610,227	45.4	733,080	567,581	614,146	568,178
	2 mos.	619	2,526,341	5,907	2,642,176	182,663	451,554	34,276	471,790	83,059	1,223,019	46.3	1,419,157	1,089,151	1,182,385	1,157,029
Wabash	Feb.	2,447	2,944,021	146,694	3,292,654	319,026	539,209	133,030	1,264,377	189,639	2,452,999	74.5	839,655	705,485	396,666	373,132
	2 mos.	2,447	5,764,678	338,907	6,521,790	636,724	1,113,000	267,653	2,595,867	387,521	5,018,018	76.9	1,503,772	1,234,588	583,555	537,033
Ann Arbor	Feb.	293	292,498	2,059	300,866	20,930	60,843	11,071	124,821	16,235	233,922	77.7	66,944	53,524	35,884	14,929
	2 mos.	293	566,839	4,738	584,632	41,089	119,060	22,287	253,601	32,967	469,035	80.2	115,597	88,656	55,523	22,739
Western Maryland	Feb.	883	1,152,829	5,728	1,195,438	111,858	289,490	35,769	322,318	42,961	808,197	67.6	387,241	327,241	361,411	398,204
	2 mos.	883	2,371,650	12,867	2,460,767	244,276	595,525	71,842	659,561	91,337	1,672,474	68.0	788,293	668,293	712,931	751,122
Western Pacific	Feb.	1,213	692,098	11,927	727,977	120,982	154,703	53,254	333,129	48,716	717,111	98.5	10,866	—55,683	—79,985	—6,666
	2 mos.	1,213	1,542,190	37,092	1,642,820	242,691	314,642	106,611	718,006	102,930	1,513,979	92.2	128,841	—4,562	—88,655	31,379
Wheeling & Lake Erie	Feb.	511	994,179	1,506	1,049,323	105,616	371,710	29,729	308,432	43,902	859,389	81.9	189,934	116,863	103,929	170,416
	2 mos.	511	2,021,326	3,044	2,129,560	201,710	684,463	58,840	629,949	89,466	1,664,428	78.2	465,132	306,512	278,004	307,195
Wichita Falls & Southern	Feb.	203	31,655	26	36,736	9,034	6,803	1,507	12,314	4,077	33,735	91.83	3,001	750	—997	—1,340
	2 mos.	203	66,355	72	75,327	17,472	13,393	3,287	25,399	8,406	67,957	90.57	7,370	2,866	—2,474	2,421